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ORIGINAL ARTICLES.

THE MANAGEMENT OF OCCIPITO-POSTERIOR POSITIONS.

Read in the Section on Obstetrics and Diseases of Women, at the Thirty-Eighth Annual Meeting of the American Medical Association, June, 1887.

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I shall premise my remarks by stating the well established obstetrical fact, that in 20 labors, the vertex presents 19 times. The great Naegelé has demonstrated that in about one-third of the cases of presentation of the vertex, the occiput was found in the posterior part of the pelvis, and in this position oftenest at the right posterior sacro iliac synchondrosis; occasionally it is found placed at the left sacro-iliac joint, or in the hollow of the sacrum; and to sum up, the occiput is found seventy times at the left anteriorly, and twenty-seven times at the right posteriorly; the other varieties of position being very rare. This opinion has been adopted by most authorities in midwifery. Seeing the frequency of this position, it is of the utmost importance to the accoucheur to study its mechanism and treatment.

Causes.—The chief condition of its production, as shown by Lusk in his admirable treatise, is a partial extension of the head, the forehead then turning anteriorly, in accordance with the law that "the most dependent portion of the presenting part is moved to the front."

Diagnosis. Before Labor. By Palpation.—The vertex is easily recognized, but it is to the left, that the hand which depresses the abdominal parietes meets the greatest resistance, and penetrates less deeply, on account of the protrusion of the forehead on a level with the left ileo-pecrineal eminence. Therefore, the back must be looked for to the right, and to recognize it distinctly, the patient should be placed on her left side, in order to be able to palpate the postero lateral region of the uterus. (Pinard, Charpentier.)

Diagnosis by Auscultation.—According to Depaul, the maximum of the fœtal heart will be heard in the vicinity of the quadratus lumborum muscle, on a line from the right sacro iliac synchondrosis to the umbilicus.

Diagnosis by the Touch.—The head will be found in a state of semi-extension, the posterior fontanelle is back, very high and difficult to reach. The anterior fontanelle, in front and to the left, is easily reached. Sometimes, the superciliary ridges and even the orbits can be felt, but they will reascend during a pain. The nearer the centre of the excavation will the posterior fontanelle be felt, the more favorable will the prognosis be.

After delivery, a marked prominence of the frontal bone, and a red mark there, will often be noticed. This protrusion is produced by the more dependent position occupied by the forehead; the red spot by the prolonged pressure of this bone against the pubis. These signs may serve to verify the diagnosis after the labor.

A diagnostic symptom which I have often noticed in my practice is a premature discharge of the amniotic fluid before labor pains have begun.

Prognosis.—It is generally favorable; and in the majority of cases, the occiput comes spontaneously to the front. But it must not be forgotten that this labor is much more painful to the mother and more dangerous to the child, on account of the great extent of the rotation necessary to bring the occiput to the pubic symphysis, and for this reason frequently requires assistance.

In the minority of cases; where the rotation forward does not take place, and the occiput is born in an occipito-sacral position, there is great danger of laceration of the perineum, or this may be centrally perforated, and the child born through the rent, as recorded by Velpeau, and as in a case I saw in consultation where, by a timely application of the forceps assisted by manual compression, the head was made to reënter the vagina and safely delivered. The opening closed spontaneously.

Mechanism of these Positions.—In occipito-posterior positions, how does the rotation of the occiput take place? It requires for its production sufficient uterine action, a resistant pelvic floor, a normally incurvated sacrum, and a normal condition of the ischiatic spines. In fact, the rotation of the occiput forward is performed in accordance with the principle of the known geometircal theorem of the parallelogram of forces, through which, when two forces are acting on a moveable body in different directions, this body moves in the direction of the diagonal of those forces. For instance, if a cherry-stone be pressed between the thumb and index finger, it will fly off by a tangent which is the diagonal of the two opposite forces represented by the thumb and index finger.

In this manner the occiput, acted upon by two opposite forces, viz.: the uterine contraction and the resistant pelvic floor, will be propelled forwards towards the anterior part of the pelvis.

Why does not this anterior rotation always take place? It is because there is insufficient uterine action, a lax perineum or one lacerated in a previous labor; a flat sacrum, or abnormally projecting ischiatic spines. If any of these conditions be present, there will be no anterior rotation of the occiput, and the labor may be indefinitely prolonged unless terminated by art.

But, if all the factors favoring anterior rotation are present, viz.: uterine contraction, resistant pelvic floor, normal incurvature of the sacrum, and there be a marked projection of the spines of the ischium, or the child very large, then the rotation will take place backwards. This abnormal projection of the ischiatic spines can be easily detected through the lateral vaginal walls at about two inches above the pelvic floor. The detection of this projection will serve as a means of prognosis as to the course the occiput will take.

When the rotation takes place posteriorly, the head descends in a state of forced flexion, the occiput against the sacrum, the forehead against the pubic symphysis; the occiput, following the postero-lateral side of the pelvis, turns completely back, is delivered first, and the perineal comissure serving as a fulcrum to the neck, the head being completely extended, there appear successively under the pubic arch the bregma, the face and the chin.

Conversion of an Occipito-Posterior Position into one of the Face.—This may be spontaneous or produced with the forceps. In this instance, the extension of the head becomes quite exaggerated, and the chin is first born under the pubic arch. This conversion can take place only if the pelvis in a multipara be unusually roomy, the child small, the perineum lax or torn in a previous labor.

Indications.—When the labor is prolonged, painful, and there is no tendency to a spontaneous anterior rotation, other indications being present, such as exhaustion of the woman, eclampsia, hæmorrhage, weakness and irregularity of the fœtal heart, showing suffering and danger to the child, we must then act promptly. We should not expose the patient and child to the dangers of a forced rotation, but without hesitation rotate with the forceps the occiput back, and deliver it at the perineal comissure, with the precautions indicated below.

Treatment.—In the occipito-posterior position, the labor may be terminated normally in two ways: Either the occiput rotates spontaneously forward, and the case does not differ from one where the occiput at first corresponded to a cotyloid cavity, except in the duration and extent of the movement of rotation, or the occiput may rotate backwards towards the sacrum. The obstetrician may imitate these two modes of delivery. But, as the spontaneous termination of the labor in an occipito-posterior position is more favorable to the mother and child, it should be preferred. Whenever the occiput shows a tendency to rotate forward, the obstetrician may select this mode of delivery with forceps whenever possible. Other modes may be tried, such as rotating with two fingers, pressing back of the child's ear (Tarnier), or palpation. These methods will usually fail. Some high authorities teach that the occiput should always be delivered posteriorly. Among these are Stoltz, Naegelé, Pajot and Cazeau. Others teach that the occiput should always, when possible, be brought forward. Such is the opinion of Smellie, Depaul, Charpentier, Blot, Tarnier and his pupils.

The objections advanced against this method is the danger to the child on account of the great torsion of its neck, the anterior rotation requiring three-eighths of a circle to bring the occiput from the sacrum to the pubis. Tarnier has instituted experiments to prove that this torsion does not take place in the neck; that it extends to all the cervical and some of the dorsal vertebræ. Still, these authorities admit that there is torsion of the neck, but they claim that clinical facts prove the safety of the method.

As for ourselves, we prefer the disengagement of the occiput posteriorly on account of the safety of the child; moreover, Lusk pertinently says that the attempt at performing an anterior rotation of the occiput usually fails. Such has been the result of my experience, and I have adopted the practice of delivering the occiput posteriorly whenever the labor had been prolonged, is painful, and no tendency exists at anterior rotation. Performed with great care, this delivery is safe for the mother and child, in spite of the dread of a lacerated perineum. This danger will be avoided by following in this delivery the following rules:

The technique of forceps application in right occipito-posterior position and in occipito-sacral position: In occipito-sacral position the forceps, applied as in an anterior position of the occiput, the biparietal diameter is then parallel with the transverse diameter of the pelvis, and the occiput occupies the posterior part of the pelvis. The left blade is applied to the left side of the pelvis, the right blade to the right side. Here is an exception to the rule that the concavity of the instrument should always be applied to that part of the head which is to be directed towards the pubic symphysis, viz.: the occiput. This is a direct and regular application.

The forceps properly applied in the right occipito-iliac position, obliquely, must grasp the parietal bosses very firmly, else on the attempt at flexion the blades will surely slip forward towards the child's face, lose their hold and the needed flexion will be impossible; moreover, this slipping forward of the forceps may cause the blades to seriously cut the walls of the vagina. Rotate the occiput in the hollow of the sacrum, before making tractions.

The tractions are make backwards in order to bring the head to the pelvic floor. When it has reached it, begin the movement of forced flexion, tractions quite upwards until the occipital protuberance clears the posterior commissure, then the forceps must be lowered towards the mother's anus and the child delivered by extension, the chin, face and bregma successively passing under the pubic arch.

By this forced flexion, the vertex clears the posterior commissure by the sub-occipito-bregmatic diameter, which is three and three-quarters inches, and by the final extension by its trachelo-bregmatic diameter, also three and three-quarters inches, both being safe diameters, and safe to the perineum.

Thus will the perineum be moved. If much distended, when a laceration appears imminent, episiotomy should be thoroughly performed. To avoid laceration of the perineum, especially in a primipara, a small but most useful operation is episiotomy. But the incision, in order to be of any assistance, should be made not *transversely but obliquely* on both sides of the vulva, thus cutting through the transversus perinei muscle. The incision should be performed with scissors or blunt pointed bistoury and at least half an inch in extent. A few hours after labor, these incissions will have contracted to the size of a short line, so that there can be no entrance of septic matter, through this channel. Of course the perineum is supported with two fingers in the mother's anus to assist the flexion in the occipito-sacral, and right or left occipito-iliac positions. The tractions to bring the head down to the pelvic floor are sometimes very difficult of execution and very fatiguing to the accoucheur. Here Pajot's method should be resorted to, or Tarnier's forceps used until the pelvic floor is reached, then should be laid aside and replaced by any ordinary forceps; Elliott's Simpson's and Hodgs' especially, which are, on account of their small pelvic curve, safeguards to the perineum.

By observing the above precautions, the perineum will entirely escape laceration, and a man may have a large experience in delivery in such cases, without having to stitch a single perineum.

DISCUSSION.

DR. E. W. SAWYER, Chicago: The subject introduced by the classical and very interesting paper, just read, has a peculiar interest to me, as unfortunately I have been obliged to study it in its various details all the years of my practice, thirteen in number. The time permitted me to discuss this paper is too short to admit criticism on some points which have been advanced. I will briefly state what my experience has been in this direction as I think it is one of the most important complications that presents itself to the general practitioner, because it occurs with such frequency. Many of the living writers and teachers state that the occiput presents in the right of the woman's pelvis once in a hundred times. The statistics of Naegelé show that there is a vertex presentation once in five times. My own experience confirms this observation with great exactitude. In 103 cases of vertex presentation the occiput presented posteriorly in 38. This series I had the honor to classify and discuss before the American Gynecological Society in this city some three years ago. Since that time 16 additional vertex presentations have occurred in my practice, making in all 54 cases in which the occiput was in the posterior part of the pelvis. These cases have taught me some important lessons. In the last series of 16 cases,, 7 were in the practice of other physicians in this city who will confirm what I will say. I would like to ask Dr. Boislinière, when he states that the occiput usually turns forward by the effort of nature, how many times he has thus seen it rotate forward?

DR. BOISLINIÈRE: Perhaps in two thirds of the instances.

DR. SAWYER: I will state to you in all sincerity that I am not a reckless meddler in obstetrics, but I have never seen the occiput turn forward in any of my cases. I believe there is nothing in the pelvis to stimulate its turning forward. A century and a half ago Smellie, than whom no more accurate observer has since appeared, said that the occiput was never known to turn forward. When the forehead occupies the anterior half of the woman's pelvis it should always be turned, that is the secret of success; that is the secret of saving these children and preventing the extreme mutilation of the mother. The ideas which I advanced in my paper before the learned Gynecological Society were criticised with some severity. Prof. Richardson, of Harvard, and Prof. Reamy, of Cincinnati, expressing the belief that it was meddlesome to turn it forward; that the position occurred less frequently and that we could patiently wait until it did turn forward. Being impressed with these criticisms I left that meeting determined that at the first occipito posterior position I had, I would wait. In December following the reading of that paper a case presented itself to me in a healthy yonng English woman, a primapara, whose waters broke prematurely, as they are very likely to do. I sat by that woman's side, the fetal pulsations assuring me of the integrity of the child, twenty four hours. No evidence of an attempt on the part of nature to turn that occiput forward. Still I determined to wait longer, and at the end of thirty hours the occiput popped out and mutilated the perineum to a shocking degree. I may say in addition that the repair of this perineum was followed by a second pregnancy and I delivered the woman of a child without injury to the repair. Following the maxim of Smellie, I believe there is but one way. You may sit for hours waiting and nature will never rotate it. The very obliquity of the planes the gentleman has described will prevent the occiput from turning forward. I would like to speak of the causes of these presentations of the occiput; I think they are due less to extension of the head, as stated by Lusk. One interesting fact in my own cases is that over two-thirds of the number were primaparæ, and the great frequency of this presentation in this class has led me to inquire into the difference between the multipara and the primapara and I think it is due entirely to the fact that the abdominal parietes are less elastic in the primapara, and in obedience to that law the dorsal surface of the fetus is placed into that hollow at the side of the woman's spine and is thus placed more obliquely. I believe it is the inelasticity that turns the occiput backwards. Smellie relates graphically and with great sorrow how he delivered a woman under these circumstances. He waited until the woman was exhausted when he took a blunt hook and put it under the chin of the child. He says, "I

took a hint from that case which I put into practice in my next," and he tells how he applied the forceps to the sides of the head and forced the head to rotate forward, and the result to the mother was very satisfactory. In my own practice the same rotation is invariably carried out but not with the forceps. It is not difficult, as has been intimated bv the reader, to rotate the head forward, it is one of the easiest and most satisfactory things to do in obstetrics. You have only to carry etherization to a satisfactory degree then introduce the entire hand and seize the sphere which presents in the palm of your hand, and nine times out of ten, even with fingers as short as mine, you can touch the forward shoulder and with the finger turn the body with the utmost facility. Not once have I failed, and gentlemen here can attest to more than one case in which they have sat all night waiting for nature to turn the occiput, I have been called, the woman etherized and in fifteen minutes delivered of a living child. Assistance can be rendered by the unoccupied hand by palpation over the woman's belly. The satisfaction I have had in relieving gentlemen who have sat all night waiting for these cases has been greater than that I have experienced in any other department of practice.

DR. BOISLINIÈRE, St. Louis, Mo.: The recognized position of the occiput is backward. Naegelé teaches that the frequency of the position of the occiput is first to the left anteriorly and last in frequency to the right posteriorly. He says that out of 100 cases of vertex presentation, the occiput was 70 times to the left anteriorly and 27 times to the right posteriorly, and there is no better authority in obstetrics on this matter than Naegelé. The fact of the occiput having been found often to the right posteriorly and having rotated to the right anteriorly, the Doctor denies the possibility of, because probably he has met with the difficulties I mentioned, in his cases. Either the sacrum wasvery flat, the spine of the ischium projected so muchinto the cavity of the pelvis as to prevent the forward rotation. The spines of the ischium have a great deal to with the rotation of the occiput forward. I appreciate the Doctor's remarks very much, but in his cases I believe the spine of the ischium has prevented the anterior rotation of the occiput, or there has been a very flat sacrum, or a very large sacrum, else one of the factors have been wanting, there were not enough uterine contractions and probably the floor of the pelvis had been ruptured by previous labor or was very much relaxed. I have attended between 8000 and 9000 cases of labor and have frequently seen the occiput face posteriorly to the right and rotate to the right anteriorly, but it requires a strong pelvic floor and no opposition from the spine of the ischium and labor favored greatly by the efforts of nature. Of course the rotation is very painful. In all my practice I have never ruptured a perineum. I think the Doctor's method is allowable only in cases of multiparæ. I do not think you can use the whole hand with a primapara, where the perineum and vagina are very small, unless you first perform episiotomy. The Doctor's method is excellent when the woman has had children, the perineum is large and the child small.

DELIRIUM GRAVE.

Read in the Section on Practice of Medicine, Materia Medica and Therapeutics, at the Thirty-Eighth Annual Meeting of the American Medical Association.

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Synonyms.—Delirium Acutum, Mania gravis, Typhomania, Bell's Disease, Délire aigu[1], Manie grave, Phrenitis.

The disorder I am about to consider, owes its importance not so much to its frequency as to the fact that it furnishes opportunities for grave yet excusable errors in diagnosis. It may fall to the lot of the general practitioner to see but a single case in a life-time. But that very single occasion will prove a memorable one. On the one hand his diagnosis will oscillate between typhoid fever, meningitis, sunstroke and hydrophobia. On the other he may be misled, through the occurrence of lucid intervals, to predict the recovery of a patient, who is in reality suffering from one of the most malignant and fatal affections of the nervous system to which mankind is liable.

The nomenclature of acute fatal delirium reflects this great uncertainty. The ancients spoke of it as *Phrenitis*, a curious term which still finds a place in certain vital statistics. Abercrombie described an "inflammatory paralysis of the brain"—a term which is quite as good a one for a certain group of cases as any used. According to Bell, alienists who occasionally saw cases of this disorder, classed it as a very acute and intense form of maniacal delirium. Clouston, as recently as two years ago, illustrated this opinion of Bell by describing a typical case as one of acute mania in his "Lectures on Mental Diseases." The former an American writer, struck by the remarkable resemblance of the symptoms to those of adynamic typhoid delirium, devised the excellent name, *Typhomania*. The French gave it the non committal designation, "acute delirium," which, owing to its ambiguity, I have proposed to change to "grave delirium."

The writers of the last decade assumed that grave delirium was a clinical entity. Schüle, Krafft-Ebing and I have assigned it a special place in psychiatrical classification. Serious objections exist to placing all cases manifesting such delirium in the same category. Fürstner, Mendel and others have shown that cases having the most different origin, may resemble each other in the final stage, and they demonstrate that Jehn and Schüle were thus misled. The experience of physicians limited to cases received in asylums does not cover all phases of the disorders in dispute. Many are received in general hospitals in a moribund condition, or soon die there, others are treated at home, on the theory of isolation or essential fever. Exceptional opportunities enjoyed by me during the past eleven years, and obtained in part through the courtesy of my lamented friends, T. A. McBride and Wm. A. Hardy, enabled me to review the subject in the light of altogether thirty-one cases of real and spurious delirium of this order.

[1] Brièrre de Boismont, op. cit.

I shall first describe the typical form:

The previous condition of most sufferers from grave delirium is usually poor. General nutrition is impaired, and there is an obscure malaise, comprising ill-defined nervous and slight gastric disturbances. Sometimes the outbreak of the disease is preceded by from four to six weeks, by a matutinal headache. This is described as a feeling of tension and often associated with vertigo. The patient is irritable; light, sound and in some cases even odors annoy him. Sleep is disturbed. He finds it difficult to collect his thoughts; he feels conscious that he is morbidly emotional, but is unable to restrain this, and in a remarkably large proportion of cases there is a sense of some impending misfortune.

The onset of the disorder may be so sudden and accompanied by so total a subversion of the mental and physical powers as to suggest the fulminating type of epidemic cerebro spinal meningitis, or the action of a violent nerve poison. The patient while walking on the street, suddenly totters and if he do not fall stumbles about aimlessly like a drunken person. At other times, while taking refuge from the impending misfortune dreaded by him, the sufferer breaks out in violent acts, which are, however, rather manifestations of anxiety than of aggressiveness. He clutches at those about him, tearing their clothing or hair and then delirates about his enemies, refuses food because it contains poison, complains of crawling vermin, has hallucinations of policemen, negroes, or of multitudinous images of a more frightful character, such as toads, snakes, bugs, goats and horses' heads, "with flaming eyes." Such visions cause him to pause in his delirious talk and to look in an alarmed or threatening manner at certain parts of the room. In some cases the visions are of a pleasant nature, and the accompanying delirium may be of an ambitious, religious or erotic tinge. Flaming spectra of angels, numerous husbands and countless lovers are seen, and in the midst of ecstatic contemplation, the patient starts, awakened by the voice of God or of a paramour, who delivers flattering missives in a voice of thunder or a glare of celestial light. Sometimes the terrible and pleasant alternate in the history of the same case. In that event corresponding changes in demeanor of a most dramatic character are noticed. The attitude of a timid hunted victim gives way to theatrical gestures, and exclamations of terror to praying, singing and whistling. In the erotic form, obscene gestures are indulged in, and the genitals are manipulated either automatically or with a definite purpose. Rapid changes of this kind are particularly observed in females. At one time such patients will dance and jump around laughing immoderately and vociferating; at another they will be found dissolved in tears, or try to escape from their imaginary foes with an air of intense anguish.

A noteworthy feature is, that even with this violent onset, there are periods of relative lucidity and apparent health, in which the patient may recognize his delusions and hallucinations, perhaps try to explain them away, by admitting that he has been drinking too much, or may voluntarily consult a physician. But in the latter event the uncontrollable nature of the disorder exhibited a sinister illustration in one of my cases. The patient complained of something "funny" in his head, said that everything seemed confused and that there was a load on his chest. But while dilating on the latter feature he suddenly exclaimed, "they want to burn me," "poison is in this atmosphere," "keep me in your office, doctor," "I am crazy, and they want to take me to an asylum." Then he passed into the wild delirium characteristic of the height of the disease.

The development of the disorder takes place amidst increasing insomnia. The flight of ideas becomes wilder, but more stupid. True remissions no longer occur in the delirium, but there are spells of quietude due to exhaustion. Indeed it is remarkable that with the unceasing raving and motor activity at this stage, fatal exhaustion does not close the history of the case thus early. The patients roll around, kicking, grinding their heads against the wall, twirling, rubbing or beating their hands so as to actually mangle them; and maintain the most singular and uncomfortable positions for hours and days. Speech becomes more and more indistinct, and there is as kaleidoscopic confusion of syllables and words as of ideas.

At the acme of the disease thus developed, everything about the patient indicates that he is suffering from something more than a mere mental disturbance. Every symptom attests that he is the victim of a profound bodily disease. The head is at first hot, the conjunctivæ injected, the expression is stupid and the face suffused and turgid. Later on cyanosis often sets in. The carotids may appear to throb violently, but in reality cardiac action is extremely feeble, the pulse being filiform, easily compressible and ranging from 110–160. It shows a striking parallelism with the temperature. The latter is high, running from 101° to 104°, but in the stage of collapse, and those spurious remissions due to collapse, often becomes subnormal. The pupils are in most cases dilated, myosis is occasionally observed, and while light reaction is commonly unimpaired, it is sluggish in a few cases. The expression of the countenance is peculiar. In some, particularly those who indulge in obstinate mutism the eyelids and lips are tightly closed, and every attempt to open them is firmly resisted. Others keep their eyes fixed on a special point, such as the gas-fixtures, making all the while a peculiar blowing motion with the mouth and cheeks, with more or less regularity and with no conscious purpose. As dissolution advances, the features become drawn, giving an indescribably sad expression.

The delirium which has given its name to the disease, is either wild or rambling. It may continue in any of the channels indicated at the outset, being accordingly either aggressive, expansive or depressive. As the disease progresses it becomes more and more monotonous, and is often limited to one subject. Soon this monotony extends to the mode and form of expression. The faculty of expressing himself, even in broken sentences becomes lost, and the patient, after passing through a period of syllable

confusion, makes meaningless sounds which are endlessly repeated. Still, even amidst this wreck of the mental mechanism, a predominant idea can be occasionally discovered. In one of Brill's cases, the name of the girl's seducer, in another, one of my own, the occasion of a quarrel which had been the exciting couse of the disease, and in a third the name of the Deity, were repeated in an impressive manner until utterance failed. Undoubtedly much of what is represented as insanity in romance, is based upon a picture of grave delirium, perverted by lay tradition.

Indications of illusions and hallucinations are frequently observed. One of my patients insisted on the removal of a pair of legs which he claimed were in his bed. Another yelled that they were drowning him in something that smelled like benzine, a third picked off the "crabs" with which he imagined himself to be covered. With this there is extreme motor agitation which ultimately becomes aggravated until a most unprecedented form of automatic violence is developed. Cases are on record in which the patients literally converted themselves into one continuous bruise, others in which they picked, chafed or rubbed their matting and bedding into furze. They may bore away at the sides of their room with their heads until the plaster is worn away, or break out in blind and purposeless motor delirium, kicking, striking and developing force that half a dozen skilled attendants may fail to restrain the sufferer. Others will indulge in less aggressive acts. These will stamp on the floor as if laying a Belgian pavement, continue making salaams for days, or rub a finger-knuckle against their teeth until the bone is exposed, or the joint actually gnawed off. In one case described by Sander the patient, a young girl, had torn her perineum and made great rents in her vulva. These movements which occupy a position intermediate to the clonic spasm and automation, are variegated or interrupted by tonic spasms. They result in strange bodily contortions, resembling, though not identical with, those found in tetanus. The maintenance of such uncomfortable positions for days at a time indicates a profound degree of anæsthesia. In some cases the hand is *main en griffe*, the nails being pressed so tightly into the palms as to cut the latter. In a number of patients there is a tendency to bite, and this tendency is so strong that in default of foreign object one such patient bit off his tongue. It is this class of patients who exhibit a terror of water, and undoubtedly many cases of so called dydrophobia were naught else than cases of grave delirium. To the best of my knowledge it is the only genuine hydrophobia in human pathology. In a few instances peculiar forms of disturbed sensation, in addition to the anæsthesia already referred to, are observed. In the event of pruritus patients may scratch their entire bodily surface until it becomes eczematous. In the majority there are suggillations due to surgical causes, and these, owing to the depressed vitality of the patients, look like the hypostatic marks of dead subjects. To add to the corpse-like appearance entailed by this terrible disease, the extremities become cyanotic and œdematous. In addition, herpes, bullæ, pemphigus, pustules and phlegmonous inflammations have been noted.

As regards the somatic functions, those of the stomach are most constantly disturbed. There is always a pronounced oral *fœtor* and frequently bilious vomiting. The appetite is ordinarily impaired or entirely destroyed, and the patients will reject the food after it has been placed in their mouths and spit on that which is still in the dish. Pulmonary œdema often occurs. In no case that I have observed, nor in any one reported by others, were the catamenia suspended or even delayed. In this respect there is a marked difference between grave delirium and the typical acute forms of insanity.

Death usually takes place quite suddenly, sometimes while the patient is yelling; at other times in coma, and is then preceded by *subsultus tendinum*. In those cases which were carefully observed in the moribund period the symptoms indicated exhaustion of the oblongata. Intermission of the pulse, hicough, dysarthria and difficult deglutition are then noted. The hydrophobia previously present may give way to thirst, though the patient be unable to swallow.

It is a surprising fact that in the midst of the very acme of a disease manifesting the severest lesions of consciousness, those para-lucid intervals should seem, which I have already commented on, as inexplicable features of the initial phase. Even here the wandering and delirious attention may be fixed, the patient brought to recognize that he is ill, deranged, in a hospital, and that his interlocutor is a physician. Yet, cases are reported in which such an interval lasted four days and the temperature went down. But the physician must not be misled into giving definite assurance of recovery. In a few hours the scene changes, and the march to the fatal termination is resumed. Death may even take place in the very midst of a lucid interval, and no more touching circumstance can be experienced in medicine than to witness the mother of a family, who has passed through the mental hurricane of acute delirium first reduced to a level lower than that of the brute, to return to nearly full conscionsness a few hours before death, cry over the escapades, she infers rather than remembers, having been guilty of sending for her children to take leave of them, and apologizes for the trouble given the nurses, to whom she makes a few appropriate presents. If any fact in the history of grave delirium convinces me that it is not a form of ordinary insanity, but rather a somatic condition of which the delirium is a symptom, it is this very one.

The causes of grave delirium may be summed up as consisting in an inherited or acquired predisposition, to which some exciting cause, such as will deeply affect the emotional faculties, or otherwise vitiate the nutrition of the nerve elements and determine congestive hyperæmia, is superadded.

I have tabulated 11 of my cases in which the history was nearly perfect, and 19 of which good histories here furnished by other writers, making 30 cases in all. The following tables accordingly show the influences of predisposing and exciting causes:

TABLE SHOWING FAMILY HISTOR.

	Males.	Females	Total.
Insanity in direct ancestry	....	4	4
Insanity in uncles, aunts, sisters or brothers	2	10	12
Normal family history	2	6	8
Not stated	1	5	6
Total	5	25	30

Of 20 known 16 had heredity.

TABLE SHOWING INDIVIDUAL HISTORY.

	Males.	Females	Total.
History of previous attack of insanity	....	7	7
History of feeb'emindedness	1	2	3
History of ugly, excentric or excited temper	2	1	3
History of alcoholism	1	1	2
No abnormal features	....	5	5
Not stated	1	9	10
Total	5	25	30

Of 20 not known 17 had acquired disposition.

TABLE SHOWING EXCITING CAUSE.

	Males.	Females	Total.
Angry excitement	1	5	6
Fright and angry excitement	....	1	1
Religious excitement	....	1	1
Seduction	....	2	2
Depressing emotions	1	2	2
Overstrain	1	....	1
Alcoholic excess	....	1	1
Insolation alone	....	2	2
Insolation and worry	....	1	1
Not stated	2	10	13
Total	5	25	30

Of 29 known 13 had emotional causes.

Regarding the age of these patients, which is stated in the case of 27, I find the youngest, a female, to have been 18 at the time of her death (Fronmüller), and the oldest 50 (Clouston). Four are 30, three 34, two each, 37, 28, 27 and 26. The largest number, eighteen out of twenty six, were between the 26th and 37th years inclusive. The average age was $34\frac{5}{6}$ years.

It is noteworthy that only one sixth of the cases were of males.

As regards the duration, in twelve cases where it was accurately known, it was nearly fifteen days, dating from the outbreak; the longest being nineteen, and the shortest six days. Schüle speaks of cases lasting but a single day, but he confounds so many different conditions under the head of acute delirium that, in the absence of confirmatory experience, I do not feel inclined to attach much weight to this statement.

As to the prognosis, it may be regarded as almost invariably unfavorable. Very few indeed recover, and then they pass through an intermediate period, of which dementia, and what I term focal amnesia, are the characteristic features. With one exception, the recoveries reported were of persons in whose history alcoholism or hysteria were prominent factors. That one exception occurred in this country and was reported by Dr. Harriet Brooke, assistant physician at the insane department of the Pennsylvania Hospital. As it is the only case in which the symptoms were well marked, characteristic, and in which the morbid condition reached a high degree, that recovered, I will make the only reference to therapeusis which this paper is to contain, in connection therewith. Morphine, which is of excellent effect in analogous conditions, is so utterly without influence on acute delirium, that what would, under ordinary circumstances, be toxic doses, can be given without even affecting the diameter of the pupil. The only procedures that have any useful influence are those employed to combat the threatening collapse. Hypodermics of ether have been used by me with excellent effect, and, as in congestive paretic dementia, ergotin exerts a beneficial influence. In Dr. Brooke's case both were given, the latter in combination with digitalis, a dose of croton oil administered, a large mustard plaster applied over the pericardium, and as soon as the oil operated, reaction from what threatened to prove a fatal collapse was established. Of course, a tonic and nutritious diet are necessary adjuvants to such a plan of treatment. But it is usually rendered impossible by the patient's refusal to eat, and if he eat, by the low state of his digestive and assimilative functions.

There is one condition which is most easily confounded with grave delirium, and that is the so called nervous or ataxic form of typhus. This disorder is characterized by delirium, somnolence, stupor, and muscular tremor of an excessive character. The presence of petechiæ, albuminuria, and the great cardiac enfeeblement increase the resemblance. If we bear in mind that this form of typhus is most apt to occur in those cases in which depressing causes have acted on the nervous system, we will understand how even the etiological history of the case may mislead the diagnostician. A characteristic eruption may be absent, the temperature may fail to furnish us with a reliable guide. In these events, the presence of an epidemic, the initial chill, great thirst and the predominating muttering character of the delirium, are our only means of establishing the existence of essential fever.

Analogous conditions are observed in typhoid fever. Exceptionally cases occur in which there is an initial delirium of such character and severity that the sufferers are sent to the insane asylum under the mistaken view that they are suffering from a strictly mental disorder. As in grave delirium, paroxysms of screaming and violence may occur. There are also sudden changes; the patient who at one moment attempts to jump out of the window, the girl who calls for a baby, or begs to be taken home, may rapidly subside into muttering delirium, coma and death. Lucid moments are equally noted. The exact and collateral evidences of typhoid are, however, less variable than those of typhus, and a diagnosis by exclusion is less difficult.

There is a disorder, extremely rare, it would seem, which is termed acute grave hysteria, and which I should be sorely puzzled to differentiate from grave delirium. Such cases, carefully observed during life, and analyzed post-mortem, are reported by Meyer and Fronmüller. I have myself seen two, in which the hysterical character was most marked, and the temperature rose nearly to 103°. In one of these there was a fatal issue. The girl, depressed by moral

influences, exhibited spasms of face and eyes, lay speechless, refused food at times, and thus continued for nearly two weeks. Then she suddenly developed restlessness, threw herself around in a peculiar way so as to lie across the bed, had crying and laughing spells, tremors of the extremities, aphasia, mutism and total anæsthesia. There was mydriasis. Consciousness, which was impaired as a general thing, was fairly clear at intervals. In the fifth week of her illness, while in a crying and laughing spell, she sud denly expired. Of course, the predominance of motor symptoms at the outset, and the crying and laughing spells, spoke in favor of a hysterical disorder. Those who saw the case with me had already given a favorable prognosis. I diagnosticated grave delirium and gave an unfavorable prognosis. My chief ground was the high temperature. But I have since learned that a temperature of 102.5° is occasionally reached in the severer form of seizures occurring in the course of benign hysteria.

In a number of cases a series of symptoms, not unlike acute delirium, has been demonstrated to have resulted from multiple infection of the brain due to ulcerative endocarditis.

A few cases have also been described in which the results of a blow on the head, in a chronic alcoholist, during the prevalence of an epidemic of typhoid fever, and an ordinary suppurative meningitis, breaking out from some cause not distinctly traced in a person who had received a blow a long time before, accurately imitated the course of acute grave delirium. If all these considerations did not prove that this symptom group was merely the terminal phase of a number of affections having this much in common, that the brain is alike overwhelmed in all by some severe and multilocular morbific agent, the anatomical evidence would seem to establish this proposition beyond a peradventure. Cysticerci, when scattered in large numbers through the brain, have produced motor and mental symptoms not unlike those related. Extremely acute cases of paretic dementia, which is a multilocular schirro encephalitis with vaso motor episodes, resemble it so closely as to have been confounded with grave delirium by Jehn and Baillarger. Finally, I have observed a case in which I was able to demonstrate—crudely, it is true, for the methods of that day were such—that a case of delirious mania with peralytic symptoms was due to the presence of miliary foci, containing a capillary as a centre, surrounded by disintegrated brain detritus, and this in turn by a zone of invasion of micrococci. Fürstner found that the blood of those who suffer from that form which leads patients to asylums presents a peculiar consistency. When removed from the finger during life, it is found to be of a remarkably dark color. On microscopic examination numerous bodies presenting tne character of detritus are found. Contrary to what is the rule with dark blood, its fibrin coagulates rapidly and *en masse*. He also found a peculiar condition of the muscles; these are brownish and exhibit exquisite amyloid degeneration, a change which, as is well known, occurs also in typhus, variola, pneu monia, puerperal fever, epidemic meningitis, and traumatic or rheumatic muscle disease. This author does not find noteworthy organic brain changes; but in just such cases as those described by him, but lasting a little longer, Clouston describes a deposit of new material all through the gray matter. Fütterer found fifteen grayish-yellow foci, visible to the eye, located at the junction of the gray and white matter. In a beautiful case of this kind I found hyaline and fibrinous exudation throughout the same districts, ten years before Fütterer's paper was published. Like him, I had regarded them as the result of thrombic stasis. I may add that attempts to cultivate the baciili found in the blood in this disease, by Briard and Marcel, failed.

On reviewing the entire evidence relative to grave delirium in the narrowest sense of the word, we find the following facts prominently established:

1. It attacks persons whose hereditary tendency involves what may be biologically regarded as a chemical, that is a nutritive instability of the nerve elements.

2. The exciting causes are either functional abuses or external influences of a kind which would aggravate such instability, and overburden the metabolic capacity of brain tissue.

3. The blood and muscles exhibit pathological conditions closely resembling, in the latter case, those found in zymotic disease.

4. All we have to assume is that, in consequence of the defective chemistry of an invalid brain, and its inability to meet the emergency of the exciting cause, some chemical body is formed which is at once toxic to the new elements, and changes the constitution of other important structures. In other words, grave delirium is to be regarded as a self-intoxication analogous to diabetic coma.

Whether the toxic agent be a ptomaine, or something analogous to the chemical body which Meynert, in a beautiful theoretical exposition, suspected the existence of in epileptic coma, comparing it to the cyanides, I am unable to say. The structural changes in the brain are altogether secondary; they may aptly be compared to those resulting from alcoholic excesses. An alcoholic excess may prove fatal, but no structural changes result from a single such excess. A series of excesses extending over a long period of time may, however, produce degenerative and vascular lesions. Similarly, the intense poison of grave delirium may prove rapidly fatal, and no characteristic lesion-changes be found after death, while in cases of longer duration, secondary results of hyperæmia and sequential stasis, modified by the peculiar state of the blood itself, are left to attest the malignant influence of the mysterious poison to which this terrible malady must be attributed.

[A full account of the morbid anatomy and pathological theory of this disease is given by the writer in the *Transactions of the American Neurological Association* for the current year.]

REMOVAL OF NECROSED BONE BY IRRIGATIONS WITH WEAK HYDROCHLORIC ACID.

Read in the Section on Surgery at the Thirty-Eighth Annual Meeting of the American Medical Association, June, 1887.

BY EDMUND ANDREWS, M.D., L.L.D.,

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In almost all cases of necrosis the dead bone can be removed without operation by the simple process of daily irrigation with diluted hydrochloric acid. This is especially important in spinal necrosis and caries; but is also applicable to necrosis in other parts of the body.

Nearly all our authors are silent on this subject, for though Dupuytren and other older surgeons have spoken of brushing the cavity with strong sulphuric acid, they contemplated merely a caustic action to change the condition of the diseased living parts, and not the dissolving out of the sequestrum. Others, however, have proposed the solvent plan, but without gaining a serious hearing in surgical literature. Billroth, of Vienna, briefly alludes to the subject, but scouts the whole idea in the following strong, but ill considered language: "Chemical solution of the sequestrum is not to be thought of. If you were daily to pour muriatic acid into the fistulous opening, it would affect the newly formed osseous tissue as much or more than it would the sequestrum, which would be very unfortunate, as it must replace the latter. Hence, the mechanical removal of the sequestrum is the only thing left."

In opposition to this high authority, I wish to state as the result of actual experiments that, by a little ingenuity in the management of the irrigation, most sequestra can be dissolved out; and if the solution be properly prepared it does not affect the living bone, nor act upon the soft parts, except as a good antiseptic; neither does it cause any pain. In fact, by the addition of cocaine and morphine, it can be made anodyne.

So far as my investigations have yet gone, I find no solvent equal to a weak solution of hydrochloric acid. Sulphuric acid seems to limit its own action by precipitating the insoluble calcium sulphate in the Haversian canals, and blocking the further access of the acid. Thin laminæ of bone will lie in a dilution of this acid for days with only a slight degree of decalcification. Chromic acid is also inefficient, and stains the linen on which it happens to drip. Nitric acid decalcifies the bone rapidly, but I have not yet finished the experiments for ascertaining its practical usefulness.

The proper strength of the hydrochloric solution varies with the tolerance of the patient, the object being to keep it just below the painful point. This will usually be found between one-fourth and one-sixteenth of the strength of the officinal *acidum hydrochloricum dilutum*, although it can be employed somewhat stronger by the addition of cocaine and morphine. The tolerance seems to be determined largely by the presence or absence of a good coat of granulations upon the living tissues. Directly after an operation, the cut extremities of the nerves are painful on the application of any acid, however weak; but after a few days, when covered by granulations, they bear comparatively strong solutions without difficulty.

The length of time required will vary with the strength of the solution, and the constancy of the irrigation. The following experiments were made outside the body to get an idea of the rapidity of the action of the acid. Fragments of actual sequestra which had been removed by operation were placed in bottles of acid of various strengths, and the time required for complete decalcification noted.

TABLE SHOWING THE TIME REQUIRED FOR DECALCIFYING SEQUESTRA IN WEAK HYDROCHLORIC ACID SOLUTIONS OUTSIDE THE BODY.

Experim't	Strength of Solution.	Dimensions of Sequestra.	Time requir'd for Decalcification.
1	1-16 the strength of officinal dilute hydrochl. acid.	4½ cm. by 1 cm. by 3 mm.	142 hours
2	1-10 do do	3½ cm. by 14 mm. by 4 mm., very hard seq. from tibia.	120 "
3	1-10 do do	4½ cm by 28 mm. by 20 mm. Very spongy tuberculous trochanter.	24 "
4	⅛ do do	9 cm. by 32 mm. by 5 mm.	117 "
5	1-12 do do	38 mm. by 9 mm. by 4 mm.	120 "
6	⅛ do do	2½ cm., very hard sequestr.	128 "
7	⅛ do do	5½ cm. by 13 mm. by 1 cm.	102 "
8	⅛ do do	8 cm. long, whole thickness of shaft of femur, diam. 2 cm.	96 "
9	¼ do do	32 mm. by 13 mm. by 3 mm.	102 "
10	¼ do do	64 mm. by 38 mm.	54 "
11	¼ do do	Block of cancellated bone 16 mm. diameter.	78 "
12	¼ do do	Sundry small splinters.	54 "

Average time of solution, about 95 hours.

These experiments show that old sequestra, which have lain long in putrid suppurating cavities, are not deprived of their gelatiniferous animal basis. In every instance the decalcified animal matter remained in full form, but, lying enclosed in granulations inside the body, it is rapidly absorbed, exactly like the decalcified bone drainage-tubes when left in position.

The method of effecting the irrigation is important. If one simply pours a little acid into the fistula, as Billroth evidently understood the plan to be, he will accomplish nothing. It is necessary to irrigate the whole sequestrum either frequently or continuously. If possible, one should have two openings, so situated that the fluid may run into one, and thence along the whole length of the sequestrum and out at the other. When necessary, new openings must be made in suitable positions, and left pervious by drainage-tubes. The next step is to fill a half-gallon fountain syringe with the acid solution, and, hanging it by the bedside, to let it run very slowly through the diseased channel. If a "through and through" irrigation is not possible, we can often obtain the same result by taking a small flexible catheter, especially of the kind having a curve near the tip, and called by the French *sonde coudée*. By a little careful management this can often be carried to the farthest corner of the cavity, and by attaching it to the fountain syringe it will deliver the fluid beyond the sequestrum, and make it flow over it on its return outside the catheter. Whenever the se

questrum can be thoroughly irrigated, its decalcification is a matter of absolute certainty within a moderate number of days. The hydrochloric solution is a perfect antiseptic of itself, and during its use no other is required.

After the solution is completed there remains the gelatiniferous animal matter of the bone, which is identical with the material of decalcified bone drainage-tubes, and like them is rapidly absorbed in antisepticized cavities. I have commenced to investigate the possibility of dissolving it out at once with pepsin, but have not finished that part of the subject.

Billroth raises the objection that the acid will dissolve the living bone as rapidly as the dead, or even more so. So plain a point as this of course cannot fail to rise in everyone's mind, but I am sure that great man spoke from mere theory, and not from observation or experience. Whatever one might fear in this respect, I find as a matter of experience that the weak solutions which I have used do not decalcify living bone. Apparently the granulations covering the living osseous tissue protect it from contact with the acid, except in spots denuded by ulceration, and even there the circulation of the alkaline blood in the Haversian canals, and the constant exudation of alkaline serum from all raw living surfaces, bone included, protect it from the action of such weak acid dilutions as I have hitherto used. At any rate, it is a positive fact that the sequestra are dissolved, and the cavity heals, without any perceptible injury to the living bone.

No. 6 Sixteenth St., Chicago.

THE INFLUENCE OF THE DURA MATER IN CAUSING PAIN, REFLEX AND OTHER PHENOMENA, WHEN INJURED OR DISEASED.

Read before the Section of Practice of Medicine, Materia Medica and Physiology, at the Thirty-Eighth Annual Meeting of the American Medical Association, June, 1887.

BY W. B. FLETCHER, M. D.,

SUPERINTENDENT OF THE INDIANA HOSPITAL FOR THE INSANE,

The dura mater, the mother membrane of the body according to the ancients, is a much neglected and most important organ, for organ it must be regarded in the human anatomy. To the average student and general practitioner the dura is but a tough inelastic, fibrous membrane of unusual thickness, which plays the part of a scaffolding and support for the brain.

A careful study of this part, however, shows that it is not only the superstructure upon and in which the brain is built, but that it is an internal periosteum to the skull—a complex channel for the great venous currents through which course, not only the venous blood from the brain, but much from outside the skull,—likewise a soft, serous cover for the membranes of the convolutions and sheath for the cranial nerves. It has, furthermore, a small arterial supply, which is gathered from branches of both the external and internal carotids, but is most peculiar in being a most sensitive organ with a greater combination of sensory motor and vasa-motor reflexes than any other part of the body. The nerves of the dura come from the Casserian ganglion direct, and from the three great branches of the fifth pair. With these are combined branches of the facial and a number of sympathetic ganglia relating it to the spinal cord.

Van Helmont and others of his school regarded the dura mater as the seat of sensation. Marshall Hall (1841) was the first to announce that its irritation caused reflex actions. In 1872, Dr. John C. Dalton showed that convulsions or contractions followed irritation of the dura upon the same side. These observations have been confirmed by a large number of experimentalists, more particularly by Duret, who injected iodine and other chemical stimulants between the cranium and the dura and produced fracture of the skull at various points.

All these experiments were upon lower animals—presumably dogs. That the same condition exists in an exaggerated degree when the dura in the human subject is either diseased or injured, is recognized by Duret and others. This author, who has written most exhaustively upon the subject, intimates that so much confusion may arise between reflected sense and motion arising from irritation of the dura, as to puzzle the advocates of cerebral localization. He says: "Certain opponents (of cerebral localization) have adduced these facts to prove that the localized movements, which are determined by the application of the electrodes on the pretended motor centers of the cortex, were in reality due to irritation of these sensory conductors."

I herewith submit a sketch of a few cases which illustrate to some extent the function of the dura as an organ of sensation and reflected motor contractions, first premising my remarks by calling attention to the anatomical points of the scalp and cranium. The scalp is not normally acutely sensitive; its cutaneous sensibility is less than other parts of the skin, notwithstanding its sensory nerves are from external branches of the fifth pair of nerves. The skull-cap, when examined shows many openings, through which emissary veins pass from without inward, as can be plainly seen upon the dura by the numerous spots where these veins have been broken in tearing the fresh calvarium from the brain; through these openings in the skull frequently, but perhaps in abnormal conditions the extremities of the dural branches pass; it is from this, we have occasionally those dreadfully sensitive tumors of the scalp, or the more dreadful tumors of the dura, which Abercrombie, Louis, Wenzel Brothers, Cruveilhier and others, describe as commencing in the dura and making their way through the skull, lifting the scalp and finally breaking into fungoid masses of the most disgusting and painful kind upon the surface. These external dural nerves, if I may so name them, also account for the excessively sensitive spots which some persons have upon the scalp, when they must avoid the pressure of even a brush or comb, and arrange the hat for the particular spot. I doubt

not that a careful examlnation in such cases would reveal a sensitive tubercle or clubbed extremity of a nerve.

Case 1. M. C. was admitted to the Indiana Hospital for the Insane in March, 1882. He was irritable, homicidal and suicidal; suffered great pain in the head—at one time so excruciating that he ran at the window-bars (an iron grating) with all his force, lacerating the scalp in many places. During the war he had been cut along the center of the right parietal by an exploding shell, ploughing a groove into that bone; into this the scalp had healed into a firm adhesive cicatrix. With the intention of trephining in this case, a triangular flap was made leaving the scar in the center. It was not possible to dissect the scalp up from the old wound, but required a chisel to separate the dense aponeurosis; the old groove was likewise thoroughly scraped. Finding no evidence of a fracture and that the direction of the flying fragment was not likely to have caused one on the inner table, further procedure was dispensed with. The wound healed in a few days with the result better than could have been expected. The pain was gone and the patient while not yet fully recovered, is comfortable, works out of doors in the garden or on the farm, is more social and is considered a "trusty" on the hospital grounds.

Case 2. J. N., some eight years ago was near a boiler when it exploded; was struck by a fragment on the right parietal near its junction with its fellow and the coronal suture. After a period of unconsciousness, he recovered so far as to pursue his vocation, that of a farmer. Two years ago he had constant pain in the right side, also several epileptic convulsions followed by slight facial paralysis of the left side, and nearly constant twitching of the right face, neck, arm and hand.

In trephining this case, June 26, I found thickened and adherent dura, which was broken up with difficulty causing at the time increased muscular contractions; but when I had cut a slit through the greatly thickened membrane and explored the convolution beneath, even to passing a probe through the cortex of motor centers, no convulsive action was excited; there was an escape of perhaps two drachms of fluid, and more after the operation, but the patient remains to this date free from pain, convulsions or paralysis.

In six other cases in which I have trephined in insanity from traumatic causes, a like result, varying in degree as the location varied, was noticed.

It is my opinion from the foregoing observations upon the anatomical relations of the dura mater to the skull, that:

First, It is frequently the seat of disease or irritation produced by pressure, causing nearly all intracranial head-aches and neuralgias.

Second, That disease or injury of the dura through its relations with the vasa-motor nerves largely commands the blood supply of the cerebral centers, thereby affecting psychical, motor and reflex functions.

Third, That reflex contractions produced by irritation of the dura mater are usually upon the same side of the irritation, but when the irritation is great, symptoms may be manifest upon both sides.

Fourth, Great inter-cranial pain in the cerebral regions is not an index of disease of those hemispheres, but of the dura mater.

THREE CASES OF SYMPATHETIC OPHTHALMITIS ARRESTED BY EARLY ENUCLEATION OF THE INJURED EYE.

Read before the Chicago Medical Society, May 2, 1887.

BY F. C. HOTZ, M.D.,
OF CHICAGO.

A few years ago a writer in the *Archives of Opthalmology* (vol. xi, p. 209) asserted that it could be definitely settled "that the enucleation of the injured eye does not arrest or shorten the course of sympathetic inflammation." But we need only to begin to look into the literature or to ask the views of several oculists to convince ourselves that the greatest difference of opinion still exists in regard to the propriety of removing the injured eyeball after sympathetic inflammation has started in the other eye. Mauthner, for instance, takes the ground that under these circumstances the operation is not only useless, but in certain forms of sympathetic inflammation positively harmful; while Wecker, on the contrary, declares these views are not borne out by clinical facts, and insists that the operation should be performed in the early stage of sympathetic ophthalmitis.

When men entertain and express such opposite opinions on a question it certainly cannot be said to be definitely settled; on the contrary, it seems to be still open to a great deal of discussion, and to call for further clinical observations before a definite decision can be arrived at.

But to discuss this subject understandingly, it is necessary that our arguments and the clinical facts to sustain them, rest upon the same platform; in other words, it is necessary that we understand each other in reference to what we regard as the early stage of sympathetic ophthalmitis. For our views in regard to this malady have recently been undergoing a material transformation; and the term, "the early stage of sympathetic inflammation," may have a different meaning in observations based upon the old views from what it means in observations made under the latest theory.

As long as the theory prevailed that the sympathetic inflammation was transmitted by reflex irritation through the ciliary nerves, we naturally looked for the first evidence of sympathetic disturbance in that part of the eyeball upon which the ciliary nerves exert their greatest influence. Tenderness of the ciliary region and inflammatory disturbance of the iris were regarded as among the earliest symptoms of sympathetic affection, while cases in which the first evidence of sympathetic disturbance was discovered around the optic papilla, were considered and reported as occasional and rare exceptions. But since Dr. Arlt (*Archives of Opthalmology*, Vol. V, 1876,) has shown the uncommon frequency of inflam-

mation of the optic nerve in eyes which had been enucleated on account of sympathetic disturbance in the other eye, clinical observations have been rapidly accumulating to show that the optic nerve plays a very prominent part in the transmission of sympathetic inflammation. In fact the evidence has become very strong already that the sympathetic inflammation is usually communicated directly through the optic nerves, and not by reflex action of the ciliary nerves. This has been positively demonstrated by Professor Deutchmann (*Græfe's Archiv*, Vol. 28, 29, 30 and 31,) in a series of interesting experiments on rabbits for the purpose of proving the infectious nature of the sympathetic opthalmitis. He injected the spores of aspergillus fumigatus suspended in a solution of chloride of sodium into the vitreous; the infected eye developed the symptoms of irido-choroiditis and the other eye showed, one week after the injection, a marked hyperæmia of the optic disc. No further changes occurred; no actual inflammation ensued in the second eye, when one injection only was made in the first eye. Deutschmann therefore concluded that the injected spores became encysted too quickly so that they did not incite an inflammation severe and lasting enough to be propagated to the other eye. He therefore modified this experiment by repeating the injection four times in twenty-four days in intervals of six days. The result was a destructive irido-choroiditis in the infected eye, and the development of the following changes in the other eye appearing in the order here mentioned: hyperæmia of the disc, papillo retinitis, acute choroiditis, and cloudiness of the vitreous.

The sympathetic inflammation induced in these experiments manifested itself first at the optic disc, proceeded then to the retina and the choroid, and finally advanced to the anterior part of the uveal tract, (ciliary body and iris). In other words, that part of the eye which has formerly been regarded as the primary seat of the sympathetic inflammation, the anterior portion of the uveal tract was the last one involved. And since we have begun, in all critical cases, giving occasion for apprehending the possibility of sympathetic trouble, to watch the healthy eye with the opthalmoscope instead of looking out for signs of iritis or cyclitis, a great number of cases have already been recorded in which the first signs of sympathetic disturbance were noticed in and around the optic disc. These clinical observations give additional weight to Deutschmann's experiments, inasmuch as they show that the sympathetic inflammation in the human eye seems to take the same course which he always saw it take in the rabbit's eyes.

But if this is the usual course of sympathetic opthalmitis; if we accept the view that it begins at the optic nerve and ends in the iris, it is not difficult to understand why enucleation of the injured eye usually proves of no benefit when it is performed at the first signs of iritis or cyclitis; for it is then undertaken at a period, when the sympathetic inflammation has long passed its incipient stage, acquired such force and intensity that it will run its course independently of the inciting cause, and has inflicted so much destruction upon the interior tissues of the eye that little could be saved should we succeed in promptly arresting the disease.

It is therefore obvious that the usually negative results of operations performed at this late period cannot be set up as an argument against the operation, and are not admissible as evidence in the discussion upon the question whether early enucleation can arrest the progress of sympathetic inflammation. To settle this question we must take those cases only in which the enucleation was performed when the first signs of sympathetic trouble were discovered by the opthalmoscope. A number of such cases are already on record, and the results show that the enucleation performed at this early period can arrest the progress of the sympathetic inflammation and rescue the second eye from destruction and blindness.

But as the discussion on this very important question cannot yet be considered closed, I wish to add to the clinical observations already published the following three cases from my own practice:

Case 1.—Fragment of steel in the fundus of the left eye; sympathetic optic neuritis of right eye; enucleation; recovery of R. E. On May 31, 1885, a small fragment from a steel hammer struck the left eye of a young farmer; the next day the eye was very painful, inflamed, and the right eye became very dim.

On the 12th of June he arrived in Chicago, and I found the following *status præsens:* V. = fingers at six feet only; marked pericorneal injection; some pain around the eye, especially at night; in the corner opposite the lower border of the pupil a fine linear scar, only 1.5 millimeters long, and in the lower portion of the iris a small oblique rent, the edges of which appeared retracted and adherent to the lens. The pupil was round and of ordinary size; but under the effect of atropine the upper portion only dilated, so that the pupil had the form of a ¾ moon. The opthalmoscope disclosed considerable disturbance in the lens in the shape of numerous dark lines forming a cobweb-like network in the posterior cortex and extending through the lower portion forward toward the perforation of the iris, (track of foreign body). This obscuration of the lens rendered a free inspection of the fundus impossible. Still I could ascertain that the papilla was normal; but a short distance from the optic disc, at its temporal side, my eye caught a bright white reflex as though coming from a small coloboma of the choroid; and at the nasal border of this white patch a blackish substance was dimly visible. The vitreous humor did not seem disturbed. Right eye normal. My diagnosis was that the minute fragment of steel had traveled through the lens and vitreous body, and cutting its way through the retina and choroid, lodged in the sclerotic. And the subsequent developments seemed to confirm my diagnosis. By keeping the patient perfectly quiet in a dark room and by the use of atropine, I succeeded within a few days in alleviating the ciliary pain and in removing all the inflammatory symptoms.

June 18; all inflammation subsided; the track of the steel through the lens very plainly visible; but the obsscuration of the posterior cortex more con-

tracted and limited to the area of the posterior pole, and consequently interfering less with the examination of the fundus. The white reflex could plainly be seen to proceed from a small oblong patch of exposed sclerotic, located about two disc diameters from the temporal border of, and almost in a horizontal line with the papilla. The upper angle of the coloboma of the choroid was occupied by a black body surrounded by hæmorrhagic effusion into the adjacent retina.

June 27; extravasation entirely absorbed; form of the coloboma changed, being broader, almost square with obtuse or rounded corners. Parallel with and close to the papillary edge of the coloboma was a longitudinal black streak, the lower end of which thickened to a triangular projection out into the vitreous; no change in papilla and other portions of fundus; V = fingers at eight feet.

June 28; V. much worse to-day; lower inner field and central vision abolished. Change was noticed last night after patient had been out riding in a buggy. Papilla quite red and ill defined; extensive detachment of the retina; three distinct folds; one fold extending from the upper border of the papilla transversely toward the location of the foreign body; a second fold embracing the superior temporal section of the retina, and a third fold the inferior temporal section.

July 3; optic disc much redder and swollen; veins greatly distended. The retina re-attached in most places; only two small short folds of detachment above the traumatic coloboma of the choroid; between this and the papilla numerous small fresh extravasations. Right eye normal.

July 12; the past two days the patient had been complaining of occasional obscurations of the sight of his right eye; when reading a few minutes it begins to ache and soon afterwards the sight is clouded. V = $\frac{20}{20}$ —, but when he reads the test-types down from No. 200, he has to stop at No 30; optic disc greyish red and its nasal border swollen and indistinct.

I expressed it as my opinion that this optic neuritis was undoubtedly the beginning of sympathetic inflammation, and that the left eye should be removed without delay. This was done and the enucleated eyeball was put in Müller's fluid for future examination.

The right eye began to improve at once after the operation, and on Aug. 4, before the patient left the city, the fundus of this eye was found perfectly normal again; V = $\frac{20}{20}$+; and no difficulty in continuous reading.

The later examination of the enucleated eye showed that the fragment of steel was suspended in the retina and choroid, and that the white patch I had taken for the exposed sclerotic was an inflammatory exudate around the foreign body.

Case 2.—Extensive laceration of eyeball by a piece of glass; secondary subchoroideal hæmorrhage by a blow; incipient optic neuritis; enucleation: recovery. Sept. 7, 1886, James P., a barkeeper, was brought to me. Two hours previously he was engaged in opening a pop bottle; it exploded and a piece of the glass cut his left eye in a frightful manner. The wound extended from the upper nasal border of the cornea in a curve downwards across the cornea, and beyond its lower border into the sclerotic. In the lower portion of the wound vitreous and iris protruded; the pupil was irregular and dilated; lens already opaque. After cocainizing the eye, I removed the prolapsed iris and vitreous, washed it thoroughly with corrosive sublimate (1:5000) and no splinters of glass being found, closed the wound by two fine silk sutures, and applied binocular bandage. The wound healed up nicely and the eye recovered from this injury—as my note-book under Nov. 30 states—with a smooth scar to which the nasal portion of the iris was adherent, and with a shrunken cataract; good perception of light in every part of the field; and normal tension. Right eye normal with perfect vision.

Jan. 11, 1887, he returned; two days previously he was accidently struck on this left eye. The pain from the blow was so severe that he came very near fainting. The eye is very red, exceedingly sensitive to the touch, very soft, (T–2); anterior chamber filled with blood. Right eye still shows normal fundus; V = $\frac{20}{20}$. Under fomentations with warm water the pain in left eye subsided, but it rapidly diminished in size; and on the 16th, (seven days after the second accident,) the right eye exhibited the first signs of sympathetic irritation, intolerance of strong light, phosphenes, quivering of the air, and disability to read more than two lines; and the opthalmoscope showed a slight hyperæmia of the papilla.

Jan. 19; the symptoms in right eye more intensified; dull pain over the eye; papilla very red and its outlines hazy. The patient now realizing the gravity of the affection, consented to the enucleation of the left eye which was done at once. This eye showed a complete detachment of the retina with corresponding shrinkage of vitreous, and over the nasal side of the sclerotic an extensive detachment of the choroid by a recent blood clot. The right eye was quickly relieved from the sympathetic disturbanee and recovered its normal function.

Case 3.—Laceration of left eye; neuro-retinitis and diffuse choroiditis with cloudiness of the vitreous of right eye; enucleation; recovery. J. J., aged 27, painter, was admitted to the Eye and Ear Infirmary Nov. 15, 1886. Six weeks ago he injured his left eye by falling from a scaffolding; the sight was totally destroyed at once. The eye has been very painful ever since the injury, and one week ago the sight of the right eye began to get dim. I found the left eye very red, soft, tender, reduced in size, and disfigured by a deep scar across the cornea extending at both sides far into the sclerotic (result of the laceration). Right eye was free from pain and redness, its pupil large and regular; but the vitreous so cloudy that fundus could not be inspected; vision reduced to perception of light.

The following day the left eye was enucleated; its optic nerve was much inflamed, and its retina completely detached.

Three days after the operation the right eye showed symptoms of iritis (pericorneal injection and a few

posterior synechiæ) which however, subsided very readily under the use of duboisine. By the beginning of December the vitreous had cleared up, so that the fundus could be plainly seen with the opthalmoscope; it showed the papillla very red, swollen and indistinctly defined; large tracts of the retina opaque white and its veins large and tortuous. Repeated opthalmoscopic examinations made during the next two weeks revealed nothing new, except that the neuro-retinitls was subsiding; but on Dec. 16, when I inspected the fundus again, I was surprised by finding that I could not see it as clearly as I could only two days previously. This haziness was caused by numerous fine brown specks which had appeared and settled on the anterior capsule of the lens; they looked exactly like the deposits on the posterior surface of the cornea in iritis serosa, but there were no signs of iritis. Deutschmann reported[1] a case in which with a similar condition of the fundus such deposits suddenly appeared on the posterior surface of the cornea without any signs of iritis. He at once declared them to be the spores of the neuro-organisms, which had incited the sympathetic micro-retinitis and had been carried from the vitreous into the anterior chamber. In order to prove the correctness of his view, he punctured the cornea under aseptic precautions, withdrew with an aseptic pipette the aqueous humor and transferred it into a culture fluid. As the focal illumination found the cornea free from deposits after the puncture, they were evidently washed out with the aqueous humor. After thirty-six hours the culture fluid exhibited the typical forms of the staphylococcus pyogenes albus, and a few drops of this fluid injected into the vitreous of a rabbit's eye developed a destructive chronic irido-choroiditis.

As the sediment on the anterior capsule of the lens in our case appeared under the same conditions, it seems very plausible that it too consisted of micro-organisms; and I now regret that I did not follow Deutschmann's example in performing the experiment.

This sediment persisted one week; then the specks gradually decreased in size and number, and in two weeks no trace of them was left. And on Jan. 16, the last examination of the eye showed: clear media; normal retina and papilla; H $\frac{1}{9}$ and V = $\frac{20}{40}$.

[1]Græfe's Arch. Vol. xxx, 3.

THE MICROCOCCI OF WOUND INFECTION

BY HORATIO R. BIGELOW, M. D.

OF WASHINGTON, D. C.

The issue of THE JOURNAL for April 9th contains a report of the proceedings of the Medical Society of the District of Columbia, meeting of February 16, 1887. The discussion of Dr. Burnett's paper turned largely to a consideration of the low forms of life in suppuration and putrefaction. It was intimated that our knowledge of these germs was extremely limited. The question was asked, Is there a microbe of suppuration? As the whole subject is one of pre-eminent interest aud importance, and as the literature bearing upon it lies scattered through the medical journals of many countries, it may serve a useful purpose to put into tangible form some facts and theories directly related thereto.

Dr. F. J. Rosenbach (Wiesbaden, 1884. "Mikro-organismen bei den Wundinfections-krankheiten des Menschen"), writes that there can be no pus without a microörganism; that in all processes of inflammation, with the exception of that occasioned by turpentine, quicksilver and phoshorous, some form of germ is the exciting cause. He finds four (4) cocci, in different suppurative conditions, which he cultivated and then tested upon rabbits. They produced exactly the same form of inflammation as that from which they were originally taken. These forms are the *Micrococcus pyogenes tenuis*, the *Staphylococcus pyogenes aureus* and *albus* and the *Streptococcus pyogenes*. The *Micrococcus tenuis* is a mild form, producing local suppuration, with slight fever and no disposition to a phlegmonous condition. The *Staphylococcus pyogenes* is found in phlegmonous pus (osteo-myelitis and furunculous inflammations). The *Streptococcus pyogenes*, the *Kettencoccus*[1] of pus formation, is perhaps (according to this author) identical with Pasteur's *microbe en chapelet* and Krause's Kettencoccus. It never produces true erysipelas but stands midway between *Traubencoccus*[2] and *Erysipelcoccus*. Rosenbach says that no specific bacteria exist in pyæmia, septicæmia and puerperal fever; that these obtain through the workings of the Ketten or Traubencoccus, or more probably through one of the three forms of Rosenbach's "saprogenic microörganisms."

De Bary (Vorlesungen über Bacterien, Leipzig, 1887:) says, that bacteria may be found in the pus of any wound. To the diseases caused by bacteria-contagia belong the various wound infections, inclusive of those of the puerperal state, and those connected with the formation of pus foci, abscesses of the skin and internal organs, of local abscesses of the skin, furuncles, ulcers, even to severe affections. In these affections we find bacterial forms in the infected places in exceptional individual cases; and according to the present views the excellent results of Lister's antiseptic method, that is to say, asepsis and neutralization of excitors of decomposition, furnish indirect proof that they stand in causal relation as excitors of decomposition to the diseases. This may happen in one of two ways. 1. As a local process, giving rise to suppuration and abscess, or it may be carried by the blood from the local point of infection to distant organs. 2. Or at the local point, it may give rise to a non-organized poisonous substance, (a true ptomaine, or something equivalent to it, and this may also be carried along in the blood current. The *Streptococcus erysipelatis* which Fehleisen (Die Aetiologie des Erysipelas, Berlin, 1883) first demonstrated, but whose presence had been theoretically assumed sometime before by Koch, v. Recklinghausen, Lumkowski, Volkmann, Hüter, Tillmanns and Orth, has now assumed its specific

[1]Kette, a chain.
[2]Traube, a cluster.

place in bacteriology; this also may be said of the *Streptococcus febris puerperalis.*

The *Staphylococcus pyogenes aureus* plays the most important rôle in pus formation. Biologically it has the characteristics of the micrococcus of osteomyelitis: indeed it is so hard to distinguish any morphological difference that it is not improbable that they are identical forms, producing in one case severe inflammation, and in another patient a milder form.

Passet (Untersuchungen über die Aetiologie der eitrigen Phlegmone des Menschen, Berlin, 1885) describes a *Staphylococcus pyogenes citreus*, and Kilt (Deutsche Zeitschrift f. Thiermed., xii. i.) describes a coccus from 0.0002-0.0005 mm. in size which he found in the milk of cows with lymphatic inflammation. Friedländer (Die Mikrokokken der Pneumonie. Fortschritte der Medicin, 1883, 1. Bd. s. 715) has fully written up the *micrococcus pneumoniæ crouposæ.* Koch (Die Aetiologie der Tuberkulose. Berl. klin. Woch., 1882.) has done an equally valuable service for the bacillus of tuberculosis. Whether any pus exist at all without the co-öperation of some germ is a matter as yet *sub judice*, but one which is being faithfully worked out, and concerning which we are having many learned discussions. The experiments which have been made with chemical substances, that produced inflammations, without pus formation, when bactrial influences were kept out, are now being subjected to much criticism. (see Passet). In every degenerative process of the human body, tending to suppurative or putrefactive change, which has been *studied*, certain germs have been discovered, and reasoning from analogy, with a just balancing of probabilities, I am inclined to believe that there can be no pus without its characteristic germ.

Laudable pus is that process of change which is rendered harmless in proportion as it is kept free from the contamination of external air—I mean that it will not assume putrefactive and destructive form until its chemical nature has been so altered that the germ, characteristic of this change, can live in it and multiply. I do not believe that the coccus of laudable pus can become a factor for evil or change its form; but rather that for some cause the inherent nature of the pus itself becomes changes, and thus becomes a fruitful field for the growth of a more destructive germ. Or the germ may have inherent potentiality for evil, awaiting only the proper chemical change to render it active.

It is safe to assume the worst at all events, and to guard against a possibility of untowardness was Listerism inaugurated. Even when the germ has not been discovered there have been found vegetative changes of equal potency. We know of no germ that will not succumb to bichloride of mercury or to the biniodide, and if time shall demonstrate that used in a diluted form that is germicidal they are free from danger to the patient, I cannot see how the first and chief features of the treatment inaugurated by Lister, are any the less worthy of support to day than they were when first made public. I have seen a very large amount of surgery, abdominal and general, during my two years and a half in Europe, but I have seen no unhappy results from a lavish use of germicides; *au contraire*, the percentage of recoveries, after even the gravest operations, is wonderfully good. Some two months or more ago, I saw Sänger, of Leipsic, do a Freund's operation, and the woman is alive and well to-day. The advocates of non-Listerism seem to have more unfortunate results from the use of germicides than do all of the other surgeons who make use of them.

Karlsbad, Germany, April 28, 1887.

MEDICAL PROGRESS.

Iodoform Injections in Cystitis.—Chandelux recommends an intra-vesical injection of an ethereal solution of iodoform in some rebellious cases of cystitis. He uses an almost saturated solution, or one containing 13 grams in each 100 grams of ether. He had obtained very favorable results in painful cystitis of tubercular origin, and in other cases of long standing, in which urination took place as often as ninety-six times in twenty-four hours. Chronic cystitis often causes a decided thickening of the bladder walls, and by their contraction the capacity diminishes greatly. If we attempt to distend the cavity by a tepid injection of boracic acid solution very severe pains are soon produced, the bladder rebels and the liquid is forced out between the sound and the walls of the canal. The bladder loses its power to bear a distension of its walls.

In employing injections of iodoformed ether, the bladder having previously been emptied by the patient, the distension is seen to take place with a certain degree of ease. According to Chandelux's opinion there is an exact balance established between the expansive force of the vapors of the ether and the power of tolerance in the bladder walls, and it is this which constitutes the great superiority of this over all other injections. An evident proof of this distension is furnished by the vesicular tympanites, which is revealed by percussion over the pubes. The capacity of the bladder can be thus shown as well as by the amount of liquid retained, to increase gradually from day to day. The rôle played by the iodoform is considered only secondary, and the author says that it is all rapidly washed out by the urine and never deposited upon the walls as concretions, which might afterward become the origin of calculi. The first injections are usually attended with considerable pain.—*Lyon Médicale*, June 5, 1887.

Pepsin in Chronic Tropical Diarrhœa.—Mr. George Harrison Young reports three cases of chronic diarrhœa which had proved rebellious to ordinary methods of treatment. In each case the treatment was stopped, and the patient placed on a milk diet, a half-pint being taken every three hours, and 5 grains of pepsin given four times daily. The record of his cases seems to show that great benefit was derived from the use of pepsin. Mr. Young states that he has used pepsin in a considerable num-

ber of cases, and always with success. He claims that this mode of treatment is especially applicable to to that form of diarrhœa in which the motions are large and frothy. These cases are due to insufficient digestion and secondary fermentation of the food. When this form of disease becomes established astringents are useless and even often injurious. Pepsin at once checks the diarrhœa. Only milk diet should be allowed, and the pepsin may be given with the milk. In typhoid fever, the author claims that pepsin, by increasing digestion and assimilation of food, will thereby lessen the diarrhœa and intestinal irritation, and by so doing will diminish the severity of the disease. It is also useful in dysentery occuring in debilitated subjects.—*Indian Medical Gazette*, Dec., 1886.

TREATMENT OF FURUNCULOSIS.—According to DR. PALASNE, of Champeaux, the use of the iodide of iron favors the resolution of faruncles, hastens maturation when they are already present, and even prevents their appearance. It acts as a microbicide, being eliminated by the glands of the skin and destroying the pathogenic microbe of the affection. He usually precribes Blanchard's pills of the iodide of iron two to four a day (that is to say 10-20 centigrammes of the iodide of iron), and he continues their administration for at least eight days after the last faruncle has disappeared. As the iodide of iron is a very unstable compound, we may have to recourse to the following process: Take in a glass of water a teaspoonful of preparation No. 1: Powdered sugar, 40 grammes, iodized alcohol, 40 drops (mix rapidly, and put into a well-corked bottle). Then take immediately a packet of No. 2: Iron by hydrogen, 8 centigrammes, sugar q. s. Without reflecting in any way upon the results published by Palasne, we desire to inform our readers that we have had no personal experience at all as regards the efficacy of this method. The remedies which in our hands have been of the greatest value in cases of furunculosis have been: 1°, internally, the sulphides, and agents directed towards the general condition of the body. 2°, locally, care of the skin, lotions of camphorated alcohol and aqueous sublimate solutions, and finally, applications of red plaster or emplastrum de vigo.—*Journ. Cutan. and Gen.-Urin. Dis.*, August, 1887.

SALICIN IN SCARLET FEVER.—MR. W. P. MEHARRY, of Belfast, says: My experience has convinced me that the pure alkoloid (salicin itself) is by far the best form to administer the willow in this affection. If given early, after a free purge, the disease will certainly be arrested, but if the tonsils have become much swollen and hard, or if the pus has formed, nothing will prove effectual, and the disease will run its course. In scarlatina, especially in that form known as scarlatina anginosa, salicin is of great value. In those cases of simple scarlatina in which the disease is prolonged by the throat complication, salicin immediately effects a cure. I have treated during the last three years twenty-seven or twenty-eight of such cases, and in no instance has failure occurred. I do not consider it necessary or prudent to administer it in every case of scarlatina as a routine treatment. Salicylate of sodium should not be given, as poisonous symptoms set in when it is administered in large doses to young children. I generally give to a child 4 or 5 years of age five grains of salicin every two hours until the temperature becomes normal; afterwards the same quantity three times daily for a few days to prevent a relapse.—*British Medical Journal*, July 2, 1887.

HYOSCIN IN PARALYSIS AGITANS. PROFESSOR W. ERB speaks most highly of the usefulness of hyoscin in this form of paralysis. He has observed no positive cures obtained by its use, but marked palliation of the symptoms. In one case after long use a kind of remission was observed. The others were much helped. For some hours the patients were able to move their limbs freely and felt much more comfortable. The trembling was removed completely in some cases and in others almost so for several hours or for a quarter or half day. The usual dose was 2 to 3 milligrams; these small doses often also caused sufficiently marked by-effects to prevent their being increased. The improvement in the general condition was so much greater than the discomfort of the side-effects that the latter were not objected to by the patients. The by-effects usually noticed where the medicine acted with unusual power or was used in a larger dose than was readily borne were generally a feeling of weakness, drowsiness, heat about the face, dryness in the throat, some dizziness, uncertainty of vision and heaviness of speech. —*Therapeutische Monatshefte*, July, 1887.

ACTION OF ANTIPYRIN AND STRYCHNIA.—M. CHOUPPE has recently presented to the Société de Biologie the results of further observations on the joint action of these drugs. The convulsions caused by antipyrin differ very much from those caused by strychnia; they are much less tetanic, are not excited by external causes, and affect much less the respiratory muscles, so that asphyxia does not threaten life. If in an animal under the influence of antipyrin strychnia in more than a fatal dose be injected strychnia convulsions occur, but a new dose of antipyrin causes them to cease, and antipyrin convulsions, which may last many hours without causing the animal's death, replace them. It seems, then, that the two drugs administered in convulsive doses produce an attenuation in the rapidity of the development of convulsive phenomena.—*Semaine Médical*, July 20, 1887.

ANTIPYRINE IN CHOREA.—WOLLNER has been lead to prescribe this drug in chorea by reason of its influence on the nervous derangements incident to rheumatism. In the case reported, the attack of chorea followed a sudden disappearance of rheumatic symptoms. Sodium salicylate, potassium bromide, and propylamine having been tried in vain, antipyrine was ordered in does of fifteen grains three times a day, a cure was effected in twelve days.—*N. Y. Medical Journal*, July 30, 1887.

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INDICATIONS FOR THE INDUCTION OF PREMATURE LABOR.

A few weeks ago DR. GEORGE T. HARRISON read an admirable paper before the New York County Medical Association on the *Indications for the Induction of Premature Labor*, which is worthy of careful study. In general terms it may be said that the object sought in this operation is to give a better prognosis in those cases in which the further continuance of pregnancy, or childbirth at term, involves great dangers to mother or child, or both, by artificial termination of pregnancy at a time when the fœtus is capable of living outside the uterus. As the chief danger to the mother, in the performance of the operation, is not, as formerly supposed, the mechanical irritation of the uterus but septic infection, it may be affirmed that, if proper antiseptic precautions be observed, this danger is an avoidable one.

The first and most important indication for the operation is furnished by pelvic deformity of a moderate degree. Theoretically, this indication is clear enough, but in practice several difficulties may arise in its fulfilment: *First*, our means for pelvic measurements are imperfect, and only enable us to approximate to correctness. *Second*, the exact period of gestation may be very difficult to determine, in certain cases deviating somewhat from the normal. Irregularities especially occur in cases of contracted pelvis, from the fact that the head is prevented from entering the pelvic cavity, and thus certain signs of pregnancy are modified. But, having fixed the date of gestation as accurately as possible, we must next decide in what week of pregnancy the induction of artificial labor is indicated. The earlier the labor is induced, so much the less danger of injuring the soft parts of the mother, and so much greater the chances that the child will be born alive; but, at the same time, the prospect of the child's continuing to live diminishes in proportion to its prematurity. On the contrary, the later the labor is induced, the greater the danger to the mother and child, but the better the prognosis for the survival of the child if living. The problem, then, is to choose such time when the child could be born without injury to itself or the mother. To do this we must get an accurate idea of the sizes of the pelvis and the child's head.

In the flat pelvis, the deformity most frequently met with, we have simply to ascertain the measurement of the conjugate diameter. In the equally contracted pelvis the problem is much more intricate. Here we must introduce the whole hand into the vagina, in order to form an idea of the pelvic cavity, and errors are difficult to avoid. To determine the size of the child's head also presents many difficulties. Schrœder showed by careful measurements that the head is larger from the twenty-eighth to the fortieth week of gestation than was generally supposed to be the case. But it must be remembered that the heads of immature children are much more compressible than those of children at term. Other criteria which may serve as guides are the facts that large and powerful women, as a rule, give birth to large children, and that the weight of the child increases with the age of the mother and with the number of preceding births. The transverse diameter of the heads of the children of young primiparous women is relatively small; while the contrary is true in multiparæ who are comparatively old. The method proposed by Frankenhäuser and Roth of determining the relation between the head of the fœtus and the pelvis of the mother, is worthy of trial. This consists in passing the child's head into the pelvis and, by means of the fingers in the vagina, ascertaining if it be possible for the head to descend below the brim. This examination should be repeated every eight days, and operative interference should be resorted to only when the descent of the head below the brim seems no longer possible.

As to the degree of pelvic contraction which justifies a resort to the induction of premature labor, Dr. Harrison believes that in the simple flat pelvis a conjugate diameter of 7.5 cm., or 7 cm. in very exceptional cases, should be the extreme limit. In the equally contracted pelvis, when the shortest diameter is at least 8 cm., it may be said that the operation is justifiable. As a rule, the thirty-sixth week of preg-

nancy is to be selected, and only exceptionally should the term of gestation be anticipated by operating in the thirty-fourth week.

An indication for inducing premature labor is also given by certain severe diseases which endanger the mother's life and are amenable to no other treatment; while, on the other hand, either a cessation or an amelioration of the symptoms may be expected with the termination of pregnancy. Among such affections is uncontrollable vomiting appearing late in pregnancy. Occasionally it is so severe that operative interference is imperatively demanded. Another disease which may indicate the operation is nephritis; though a distinction must be made between cases in which the anatomical and functional renal disturbances are evoked by the pregnancy, and those in which the disease is an interstitial or parenchymatous nephritis, which either existed prior to conception or was produced during the course of gestation. As to the induction of premature labor to prevent eclampsia, Dr. Harrison believes the indication clear and decided when the urine shows a constantly increasing quantity of albumin and fatty-degenerated cells, and when all other resources prove unavailing. Again, excessive œdema and transudation into the serous cavities may demand the operation. To diagnosticate between the two forms of nephritis referred to, *nephritis gravidarum* and *nephritis in gravitate*, is no easy task. The clinical phenomena are so nearly alike that the previous history of the case and the course it took can alone decide as to which form is present in a given case. It has been abundantly shown that in chronic nephritis in pregnant women there is a great tendency to abortion and premature labor, and not so much to attacks of eclampsia.

A third indication for the induction of premature labor in the interest of the child, is met with in certain cases in which experience has shown that the children died at a certain date of gestation, when this time was not far removed from the end of pregnancy. Some cases of *nephritis gravidarum* come under this category. If syphilis be the cause of death of the fœtus, the artificial interruption of pregnancy Dr. Harrison thinks is contra-indicated; for, according to Kassowitz, in latent syphilis of the father or mother the death of the fœtus takes place in each ensuing pregnancy somewhat later; so that in successive pregnancies these are first abortive fruits, then immature macerated, then prematurely born macerated, and finally mature, but diseased children; still later, mature healthy children. On the other hand, we gain nothing by the artificial induction of pregnancy before the expected time of the death of the fœtus, for the child is already diseased, and may be considered as lost. In cases, however, in which chlorosis or anæmia of the mother, or changes in the umbilical cord or placenta, have caused the death of the fœtus, the induction of premature labor before the critical period may be the means of securing a living child.

It is rare that diseases of the heart or lungs give an indication for this operation, though they occasionally do. Lastly, an indication for the induction of premature labor is furnished by those dangerous and incurable diseases of the mother which would probably cause death before the end of pregnancy, in order to avoid the Cæsarean section *post mortem* or *in articulo mortis*.

DANGERS OF SALTS OF LIME.

DR. ARNOZAN, of Bordeaux, lately made a communication to the Medical Society of that city on the dangers of submitting children to the prolonged use of salts of lime. He reported the case of a youth 14 years of age, who was affected with coxalgia, and who for six months took two table-spoonfuls of a solution of hydrochloro-phosphate of lime, a patent medicine, 20 grams of which contain one gram of the salt. During this period the patient had, at a few days interval, three attacks of nephritic colic, characterized by vomiting and by very slight renal pains, the diagnosis of the nature of the colic would have been very difficult had it not been for the rejection ultimately of three small calculi during micturition. The phosphatic medication was immediately suspended. The nephritic colic did not return, and during three months there was no sign whatever of renal lithiasis. The coxalgia appeared to be cured and the patient, although a little emaciated, did not present any lesion whatever of the internal organs.

The most voluminous of the three calculi that were expelled was examined. It was the size of a hemp seed, of a whitish grey color, the surface slightly rugose, and, weighed at the time 25 miligrams. At the moment of rejection, the calculus was a great deal more voluminous. Independent of a few traces of organic matter it was composed solely of the phosphate of lime. This composition, the author remarked, is rather exceptional, adding that doubtless the phosphates are not rare in renal concretions, but they are not alone, and are generally found united with lithic acid or with lithic salts. In the case under notice, on the contrary, the phosphate of lime was the only mineral element in the calculus.

From an etiological point of view, says the author,

it is impossible not to incriminate the medication followed by the patient. The composition of the calculus submitted to analysis, its formation in the youth who had no hereditary predisposition whatever to gravel and who absorbed considerable quantities of phosphates, the non-reproduction of nephritic colic as soon as the medicine was discontinued: all these circumstances put together do not appear to leave much room for doubt. It must, however, be acknowledged that the immobilisation to which the patient was subjected might have favored the development of lithiasis, and no argument can be deduced from a single example against phosphatic medication, so excellent in a large number of cases. Dr. Arnazan suggests that the examination of the urine of patients submitted to the use of phosphates may furnish useful indications for the moment when it would be necessary to suspend momentarily, or altogether, the medication, and whether, particularly in immobilised patients, it would not be better to substitute the phosphates of soda and of potash for the phosphates of lime.

THE "GOOD STANDING" OF MEDICAL COLLEGES.—The brief comments we made on this subject in connection with a resolution recently adopted by the Illinois State Board of Health, have brought to our table a shower of questions. Some of them are accompanied by names of members of the profession worthy of full attention, while others are anonymous and worthy of little notice. Two of the more important of these questions, viz.: "Is the regulation of the practice of medicine by law desirable, and if so, who shall decide upon the qualifications and conditions required?" were answered directly and clearly in the editorial columns of THE JOURNAL for March 12, 1887, p. 295–6, and for March 19, p. 322–3. But for a more full consideration of the whole important subject our readers must wait until the more pressing work of the next thirty days has been accomplished. Until then we will keep their questions on file.

RAILWAY RATES TO THE CONGRESS; EXTENSION OF TIME.—We would call the attention of the readers of THE JOURNAL living west of the Ohio River, who intend going to the meeing of the International Medical Congress next month, to the advertisement on advertising page 11 in last week's issue of THE JOURNAL, in regard to the facilities and equipment of the Baltimore & Ohio Railway.

We also wish to state that inasmuch as the Trunk Line Traffic Association has allowed an extension for return tickets, used by those attending the Congress, until September 20, the Baltimore & Ohio Railway has also arranged to extend the time of all return tickets over their line to the same date; thus enabling those who wish to do so to visit New York, Boston, the seashore, and other points after the Congress adjourns. This information is later than that under the department of "International Medical Congress," on a subsequent page.

SOCIETY PROCEEDINGS.

AMERICAN OTOLOGICAL ASSOCIATION.

Twentieth Annual Meeting, held on Tuesday, July 19, 1887, at the Pequot House, New London, Conn.

(*Concluded from page 184.*)

A paper entitled, *Desquamative Inflammation of the Middle Ear, with remarks* by Dr. O. D. Pomeroy, of New York, was read by title.

DR. E. E. HOLT, of Portland, Me., read a paper on

AN EFFICIENT POWDER BLOWER, WITH REMARKS ON THE USE OF POWDER IN THE TREATMENT OF DISEASES OF THE EAR.

The powder blower consists of six or eight inches of small glass tubing to which is attached about fifteen inches of rubber tubing. The glass tube is plunged into the powder until a sufficient amount is introduced into it. The powder is gently drawn into the proximal end of the glass tube. The distal extremity is then placed in the speculum and the powder blown into the ear. By drawing the powder from the distal end before blowing it, it is carried *en masse* to the desired point and applied evenly to all parts. The instrument can be used with great facility. After trying various powders, boric acid has been found the most efficient in the largest number of cases. One of the first cases in which the author had used this powder was one in which treatment for over two years had failed to cure a suppurative otitis media. Upon the application of the powdered boric acid the discharge ceased and has not returned, a period of five years. Cleanliness before using the powder is essential. A comparison of cases of chronic suppurative otitis media treated with boric acid and with those treated without this agent, led to the conclusion, that while the discharge from the ear ceased much earlier when the powder is used, yet perforations in the drum head heal less frequently.

DR. SAMUEL THEOBALD, of Baltimore, exhibited a powder blower similar to that of Dr. Holt, with the exception that the glass tube was substituted by a goose quill and that the rubber tube was furnished with a mouth-piece consisting of a quill. The powder is introduced into the quill and by shaking brought to the proximal extremity of the tube, the object being that it shall be thrown into the ear in the form of a cloud.

DR. WM. W. SEELY, of Cincinnati, had never seen any benefit from blowing powders into the ear. He had seen good results only when the powder was packed into the canal. He now rarely used the powder in any way.

DR. B. ALEXANDER RANDALL, of Philadeiphia: In treating a number of cases of purulent discharge which had continued from five to fifteen years and in which the discharge had been pretty continuous and fetid, I have cleansed the canal and used boric acid, at first blowing it in lightly and finally filling the canal pretty full without packing. Within a few days the powder is dissolved and the discharge is usually diminished in quantity and the odor is lost.

DR. H. KNAPP: In acute cases of otorrhœa, I use boracic acid as antiseptic and cleansing powder. The patient is directed to cleanse the ear with the syringe three times a day. The powder is then introduced by means of a spoon until the canal is loosely filled. If the powder becomes moist the patient is directed to syringe the ear and renew the application. The majority of acute cases do not require any other treatment. In chronic cases I remove any polypoid growth or any carious bone that may be present, and then use alcohol in fifty or sixty per cent. strength, or absolute, with sulpho-carbolate of zinc and change that with nitrate of silver. I continue this treatment until the ear is dry and there is no discharge, and direct the patient to do nothing beyond using a light cotton plug to filter the air.

DR. C. R. AGNEW: In using fluid applications in the treatment of these cases I have employed a procedure which may be new to some of the members. After cleansing the ear in which I want to diffuse a fluid application as much as possible, I turn that ear uppermost and fill the external canal with the solution. Then I insert the nozzle of the Politzer apparatus into the external canal and make pressure diffusing the liquid to all parts of the ear and making in appear in some cases in the pharnyx. This sometimes may be of value.

DR. SAMUEL THEOBALD: I have never seen any direct harm follow the use of boracic acid. In cases of suppuration with a small or moderate sized perforation, I have seen it dry up the discharge and leave the perforation larger than before its use. In such cases, I prefer solntions. In acute cases, my practice is to always use solutions. Where the drum membrane is practically gone, with a granular condition of the mucous membrane, the use of boracic acid powder is indicated. I have never found it necessary to pack the canal. One puff of the powder blower fills the canal sufficiently full.

DR. H. KNAPP: In acute suppurative otitis which is certainly of bacterial origin, I use boric acid largely on account of its drying properties. Suppuration, fermentation and decomposition do not take place where a part is kept dry. As soon as the boric acid becomes moist I have it removed. For acute cases I know nothing better than this method of treatment.

DR. EMIL GRUENING: I should like to make a few remarks with reference to three cases which I have already mentioned. In these cases I attributed the fatal result to the use of powder which was boracic acid. The first case was that of a girl 19 years old who had otitis as a result of the use of the nasal douche. She was advised to use powders. In a few days she began to suffer with headache, dizziness and intense tenderness on one side of the head and slight puffiness in the region of the mastoid. I saw the patient after she had become comatose. I found the tympanic membrane bulging; it was injected, and there was a slignt tit-like projection and in this there was an opening filled with powder. The pus which formed in the middle ear escaped through the Eustachian tube. I made an opening in the membrane and cleaned it out carefully and advised the family physician to open the mastoid. He did so and found the mastoid cells filled with pus. The patient recovered consciousness but died the next day from heart failure. The second case was that of a lady 70 years of age who had otitis media with perforation. A powder was applied by a general physician and a few hours later she began to suffer with intense headache. Symptoms of meningitis appeared and I was called in. I found a small opening in the membrane occluded with powder. I made an opening, but the patient died of meningitis. The third case was that of a child with long-standing otitis media, and destruction of both membranes. This is the only case in which the powder had been packed. After the ears had been packed the child had repeated chills. I was called in and removed the plugs which were hard concrete masses and were taken away with difficulty. In spite of the removal of the powder the child died with all the symptoms of pyæmia.

DR. D. B. ST. JOHN ROOSA: I think that in a large percentage of cases acute inflammation of the middle ear is a self-limited affection. I try to secure cleanliness and then dry the parts. I do not use the dryness as a means of destroying the germs or preventing them from acting, for I do not believe in the germ theory of disease. I think that germs are the products and not the causes of disease. I think that they retard recovery and therefore should be removed. In a large proportion of the acute cases the only treatment required is irrigation with warm water pro re nata and drying afterwards. I believe that the pus has a chemical quality apart from the presence of germs which renders it corrosive. I therefore try to keep the parts as free from pus as possible.

DR. CHARLES H. BURNETT, of Philadelphia, reported

AN EXAMINATION OF FIFTEEN DEAF MUTES BY MEANS OF J. A. MALONEY'S OTOPHONE.

The cases examined were pupils in the Pennsylvania Institution for the Deaf and Dumb, Philadelphia, and were between the ages of 12 and 21 years. The cases were divided into three classes: 1, congenital cases; 2, those losing their hearing between the ages of 1 and 5 years; 3, cases of profound hardness of hearing, but who still hear a little and can talk—so-called semi mutes. The method of pracedure was as follows: five vowels were written and pointed out and the time of their repetition three

times in succession through the otophone by Mr. Maloney. The pupil was then told to indicate which vowel was spoken when Mr. Maloney made another repetition, care being taken to mix about in the tests. The words Philadelphia, Mississippi, Burlington, Missouri, boy, baby, papa, and mama, were also used as tests, as well as the consonants. Hearing was excited in every instance; but fourteen of the fifteen cases gave ample ev dence of hearing by their successful indications with the pointer as the different tests were repeated in their ears. It was noted that the results were not as gocd with the acquired cases as in the so called congenital cases of deafness. This may be due to the fact that the process productive of the acquired form is more violent, involving the internal ear, as in spotted fever, than in congenital cases which generally give evidence of being simply catarrhal in their origin and affect the middle ear but not the internal auditory organ. In the case of semi-mutes the results were especially satisfactory as they heard nearly everything said to them and returned intelligent answers to the questions. In such cases both the remaining hearing and the articulation could in all probability be improved by the systematic employment of such an instrument as the otophone as a means of instruction, the best results being obtainable where the instruction is begun early in life.

A paper with the same title, presented by Dr. F. B. Loring, of Washington, in the absence of the author, was read by title.

Drs. H. L. Morse, of Boston, and B. Alexander Randall, presented a series of *Photographic Illustrations of the Anatomy of the Human Ear.*

Dr. Samuel Sexton reported an

EXCISION OF THE OSSICLES OF THE DRUM OF THE EAR FOR CHRONIC PURULENT INFLAMMATION OF THE MIDDLE-EAR TRACT.

Since bringing this subject to the attention of the Society one year ago, the wri er has continued the practice with satisfactory results, and presented some further observations based upon the records of nineteen operations. Of these nineteen cases thirteen were females and six were males. Seven cases were between 5 and 12 years of age, eight were between 13 and 20 years of age, and four were between 13 and 40 years of age. The left ear was affected in eleven cases cases, the right ear in eight. In two cases both ears were the seat of suppurative inflammation, and in one there had been a mastoid abscess. In the majority of cases there had been a history of recurrent aural catarrh for a long time, attended with pain in the ear. There was much deafness and distressing acoustic phenomena, as autophonia and the like. The discharge was usually offensive. The general health of most of the patients was fair. In all cases the drum head was greatly impaired, the membrana vibrans being usually almost entirely gone; in most of the cases the membrana flaccida alone remained, perhaps with some portion of the membrana vibrans attached. Where any of the latter remained it was liable to be found connected by bands to the inner wall of the tympanum. Sometimes a sinus of greater or less size opened through these diseased structures into the attic. The membrana flaccida, together with the membranous and ligamentous attachment of the ossicles generally held the latter in place even after the most extensive suppuration had long existed. Under these circumstances drainage was extremely likely to be interfered with. The manubrium and cicatricial structures depending from the auditory plate were frequently found adherent to the inner wall of the tympanum, while the attic and antrum were lined with much thickened mucous membrane. Some portion of the middle-ear tract was found to present more or less carious bony surface. In some instances the ossicles themselves were carious or anchylosed. In several of the cases the malleus handle was adherent to the inner wall of the drum. In some only a necrosed stump remained. In some the malleus and incus were adherent to each other. The incus was less liable to caries. The stapes cannot be so well examined as the other bones, since it is never removed. In some of the cases the operation was not resorted to until months or years after ordinary methods of treatment had been unsuccessfully resorted to.

Without going into all the details of the operation, the author said that experience had shown that it may be performed much more rapidly than was at first supposed. The first operations required an hour, the later ones not more than fifteen minutes. To the protracted operation he attributed more disagreeable symptoms, such as nausea, which had not been presented by the later cases. The remaining fragments of the drum-head are everywhere detached from the tympanic ring with a slender trowel-shaped knife. The malleus is then freed from its attachments, including the tensor tympani muscle, by one or more sweeps of the knife. After all blood is removed the long process of the incus is separated from the stapes, if it be connected with that bone. The malleus handle is separated from the inner wall of the canal, if it has been attached. The malleus handle is seized with stout forceps as high as possible and gradually detached and brought away. The removal of the incus is more difficult, since its long process is likely to be swept from view. With a little patience, however, the bone may be soon found and its removal is then a simple matter. When lying in the attic, the scraper may be of service in bringing it down. In most instances he no longer divides the chorda tympani. In some cases where the ossicles were very adherent, considerable force was necessary to detach them, and in one instance this was impossible. After the operation the drum should be carefully dried with cotton, and ten drops of a four per cent. solution of cocaine may be instilled. This is usually unnecessary. Usually very little or no reaction follows the operation until a little time after the menstrual period.

In the nineteen cases both malleus and incus were removed in ten. In one the body of the incus alone was removed. In six cases the malleus only was excised. When possible it is well to clear the drum of granulation tissue by treatment before the operation, since less hæmorrhage will then be encountered.

The duration of treatment after the operation was, in five cases, one month; in two, two months; in one, six months; and of the other nine cases, three were unimproved, one failed to continue treatment, and five are yet under observation. Nine cases progressed steadily to a complete cure, six were much improved, three were unimproved, and one failed to contiaue treatment. Many of these were dispensary patients, under bad physical conditions. A marked improvement in hearing occurred in nearly all cases. In the cases noted as cured it increased 75 or 100 per cent., as far as testing with voice was concerned.

This marked improvement in hearing was unexpected, and gave rise to the conjecture that we may recommend the operation for deafness alone in many cases where the drum is obstructed by the results of chronic purulent inflammation, although all discharge may have ceased.

Reproduction of the drum-head never took place. Among the results of the operation may be mentioned the prevention of recurrent accumulations of purulent matter in the attic and antrum. The general health was nearly always improved. In two phthisical cases the cough was lessened in one and ceased in the other, while both gained much in weight. In children the effect on health was most marked.

The operation is performed with the patient upon the back and under ether narcosis. The electric light is almost essential. Magnifying lenses introduced into the speculum are of service. The after-treatment consists in keeping down granulation tissue and aiding in the transformation of the mucous lining into a dermoid condition. A meddlesome plan of treatment is undesirable. Where a large secreting tract exists a cure is sometimes almost impracticable. Alcohol has not been found useful in treating granulation tissue. Salicylic acid and boric acid have done good in a few cases. The peroxide of hydrogen has its use in certain cases. The persistence of discharge after operation may be expected in catarrhal and run-down subjects, especially where caries of the bone exists.

EVENING SESSION.

A case of Rapid and Almost Total Loss of Hearing in a Child 7 years of age; Inherited Syphilis Apparently the Cause; Marked Improvement following the use of Iodide of Potassium, by Dr. A. H. Buck, of New York, was read by title.

DR. SAMUEL THEOBALD reported a case of

SYPHILITIC DISEASE OF THE LABYRINTH,

exhibiting remarkable variations in the degree of deafness. The patient was a man about thirty-four years of age, the subject of inherited syphilis. In one ear the deafness was nearly complete, and in this ear there was but little variation. In the other ear frequent and sudden relapses occurred, after the hearing on several occasions had been brought up almost to the normal standard. Within twenty-four hours the hearing would fall from the ability to distinguish words in a whisper at twenty inches, to a degree of deafness which would require the same words to be spoken in a loud voice. Iodide of potassium was given with but little effect, but decided benefit resulted from the administration of bichloride of mercury in combination with muriate of ammonia.

EXECUTIVE SESSION.

The following were elected to membership: Drs. C. J. Lundy, of Detroit, W. H. Hotchkiss, of New Haven, H. D. Risley, of Philadelphia, David De Beck, of Cincinnati.

OFFICERS FOR ENSUING YEAR.

President—Dr. J. S. Prout, of Brooklyn.

Vice-President—Dr. George C. Harlan, of Philadelphia.

Secretary and Treasurer—Dr. J. J. B. Vermyne, of New Bedford, Mass.

Representative to Executive Committee of Congress of American Physicians and Surgeons, Dr. C. R. Agnew, of New York. Alternate, Dr. Wm. H. Carmalt, of New Haven.

The Society then adjourned to meet at New London, Conn., July 19, 1888.

AMERICAN OPHTHALMOLOGICAL SOCIETY.

Twenty-third Annual Meeting, held in New London, Conn., July 20 and 21, 1887.

(*Continued from page 186.*)

EVENING SESSION.

DR. W. F. NORRIS, of Philadelphia, reported some

CASES OF ACUTE PRIMARY GLAUCOMA, OF HÆMORRHAGIC GLAUCOMA, AND OF SECONDARY GLAUCOMA.

Case 1.—A married woman, aged 52 years, was admitted to the hospital with acute glaucoma of the left eye. The attack was of twelve days' duration. Vision was much impaired. The right eye was entirely quiet and presented a narrow iridectomy upwards. In August, 1875, a severe attack of glaucoma had suddenly occurred in the right eye, and on the fifth day iridectomy had been performed. Since then the eye had given no trouble. When admitted to the hospital, the patient was in a feeble condition. She was put to bed, a leech applied and eserine instilled. The eye improved and became quieter. The cloudiness of the cornea and the other symptoms remaining, iridectomy was performed twenty-eight days from the commencement of the attack. A year later, she had a severe attack of pain not relieved by eserine, and sclerotomy was performed. The eye continued to give trouble from time to time, and it finally became necessary to enucleate it.

Case 2.—Miss B., aged 70 years, was seen in February, 1867, with marked hæmorrhagic retinitis and incipient cortical cataract. She stated that she had a sudden loss of vision two years previously. The present attack of loss of vision came on suddenly ten days before, when the patient was stooping. Examination showed numerous hæmorrhages into the

retina. One month later, the right eye was more cloudy, the tension increased, and there was some hæmorrhage into the anterior chamber. Iridectomy was then performed. The wound did well until the fourth day, when there was a sudden attack of pain. On the ninth day, apparently without exciting cause, this symptom recurred. After this there would be an exacerbation every few days. The eyeball was snbsequently enucleated, the patient dying a year or two later with apoplexy.

Case 3.—A man aged 66 had been operated on for cataract in both eyes some time before coming under observation. This had been done in England, both operations having been successful. Some eighteen months later, the right eye had been operated on by a needle operation, and since then it had not been free from irritation. When seen, the right had lost the perception of light, and the left eye presented signs of sympathetic irritation. The right eye was enucleated, and this relieved the irritation in the left eye. The patient now sees fairly well.

Dr. H. D. Noyes said that in a case reported last year, dying on the fifth day, perfect approximation was prevented at one end of the incision by swelling of the scleral lip of the wound, which was double the thickness of the corneal lip. Into the space so left the iris had been forced, thus illustrating the beginning of a cystoid cicatrix.

Dr. H. Knapp asked whether the swelling of the scleral lip might not be due to the previous incarceration of the iris in the wound?

Dr. Noyes believed that the use of the spatula in dressing the wound had left it free from iris.

Dr. B. A. Randall said that in Dr. Noyes's case the anterior chamber must have been obliterated and the posterior capsule pushed forward, for the sections showed pigment attached to the posterior capsule.

Dr. B. Alexander Randall, of Philadelphia, presented the notes of a case of

SARCOMA OF THE EYELID, SIMULATING MEIBOMIAN CYST,

occurring in a man about 41 years of age, who came under observation in 1885, with the history of two operations in the previous three years for the removal of a cyst. The tumor had the position, size, color and apparent *fluctuation* of a chalazion, but a vague grayness suggested pigmentation, and led to its total removal by a V-shaped incision through all the tissues of the lid. Section proved the tumor to be a solid encapsuled sarcoma of large spindle cells. The patient passed out of sight for two years, and then returned with recurrence very like the origin, which had been treated in the interim as chalazion. The outer half of the lid had now to be removed, and the tumor was found to be of the same nature as before and again encapsuled. The meibomian glands at both operations seemed to be entirely normal, and the tarsus was entirely uninvolved.

Dr. Randall also presented some cases of

CILIO-RETINAL VESSELS,

with the remark that they were far from rare, and that the occurrence of such an origin of even a principal artery or vein, supplying different quadrants of thh retina, had come to notice.

Dr. Randall called attention to the

HOHLSCHNITT OF V. JAEGER IN CATARACT EXTRACTION

as differing in no essential from the modified linear extraction, except in the knife with which it is made. He asked attention to the knife, with the claim that with it almost all the usual modifications of the linear extraction could be made, but that no aqueous need be lost until the completion of the incision, and consequently that the cut could be made more safely and smoothly than was possible with the Graefe knife.

Dr. Knapp had used Jaeger's knife, but thought it harder to manage because of its greater size. With the Graefe knife one can withdraw slightly and rectify any mistake in the position of the counter-puncture.

Dr. H. D. Noyes agreed with the last speaker as to the superiority of the Graefe knife. He had long practised a manœuvre which he found Panas also employed: after making the counter-puncture, the handle is rather depressed, so as first to make the portion of the section adjacent to the counter-puncture. This quickly carries the cutting edge of the knife to the border of the anterior chamber, where the iris can no longer fall before it. Then the handle of the knife is raised as the section is completed.

Dr. S. Theobald, of Baltimore, thought the greater convenience of the narrow knife due to the fact that with it we can first make the counter-puncture, and afterward complete the section; with the broad knife both must be done at once.

Dr. Randall said that if the puncture is made right, with the knife in the proper position, the counter-puncture must of necessity be right also; and the incision made is perfectly smooth.

Dr. Knapp thought that a broad knife acts more as a chisel, tending to push the cornea before it.

Dr. E. Gruening was of the opinion that the difficulty about making a counter-puncture is that its location is not seen; and when an attempt is made to correct its position, aqueous escapes and the iris is apt to fall before the knife.

Thursday, July 21—Second Day.

Dr. H. D. Noyes, of New York, reported a

CASE OF GLIOMA OF THE RETINA.

The patient, a child, was first seen when 15 months old. The eye was enucleated and microscopical examination confirmed the diagnosis of glioma which was made prior to operation. The patient was again seen fourteen and one-half years later, when 16 years of age. An artificial eye had been worn. There was not the slightest evidence of a return of the disease.

PSEUDO-GLIOMA.

This case was reported on account of the interest connected with the diagnosis. It was difficult to say positively whether or not there was an intra ocular tumor. The case was examined by Dr. H. Knight and the author, and a diagnosis of inflammatory trouble was made. Enucleation was advised on account

of the doubt as to the correctness of the diagnosis, and even if the affection was purely inflammatory, enucleation was the wisest plan in view of future possibilities. The patient was a boy aged 5 years, who in November, 1886, had fallen from his velocipede, the handle of the machine causing a wound of the left cheek under the orbit. There was no apparent injury to the eye, and during the following winter there was no trouble. On May 4, 1887, he was first seen by the author. There was at this time a cicatrix one inch below the border of the left orbit. No irregularity of the orbital edge could be detected, and pressure on the globe caused no pain. The movements of the eye were normal and the pupil active, the iris had a slightly greenish hue. An extremely vascular growth was seen with ease. This seemed to fill the fundus. After consultation it was deemed advisable to enucleate the eye. This was done, the wound healing promptly. Examination showed that there had been cyclitis with inflammation of the vitreous, with the production of inflammatory tissue extending across the eye behind the lens, forming a perfect septum. The retina was totally detached and the choroid was partially detached. There was also marked hypertrophy of the tissues at the base of the orbit. It was thought that the original process had been an injury to the floor of the orbit.

DR. NOYES also reported a case of

PROLAPSE OF THE LACHRYMAL GLAND.

C. S., aged 20 years, consulted him on account of a swelling in the upper lid of the right eye. This had been growing for nine years. It could be freely moved over the globe an moved with movements of the eyeball. There was no history of injury or of inflammation of the eye. The mass was removed and found to be a displaced lachrymal gland. The removal has been followed by no unpleasant effects. Four cases of displacement of the lachrymal gland are on record.

OPERATION FOR THE RELIEF OF ENTROPION OF THE LOWER EYELID.

While in theory the operations for the relief of this condition are very simple, yet in practice they often fail to accomplish the desired end The author then described an expedient which he had employed four years ago. He excised a piece of skin below the border of the lid and then dissected up a flap, leaving an open wound. He next freshened a spot on the outer border of the lower lid, taking out a piece of conjunctiva. He then turned the flap upward and attached it to the freshened surface. This little flap served to hold the lid in a position of eversion. In one week the stitches were removed. The patient then disappeared and was not seen for four years. It was then found that the lid remained in a natural position. The little bridge of skin was still present, and under it there was a sinus through which a probe could be passed. The piece of skin was divided and the result was perfect.

DR. SAMUEL THEOBALD: In connection with the case of glioma, I would mention one that has gone nine and one-half years without a return. The only weak point in the case is that no microscopical examination was made. The macroscopical appearances were, however, characteristic. The operation was done when the boy was 6 years of age. The boy is still perfectly well and there is no suggestion of the return of the disease.

DR. H. KNAPP: Until lately I have held the view that there was such a thing as the permanent cure of glioma, but now I am very doubtful if this is ever accomplished. There are exceptional cases which do not terminate fatally until ten or fourteen years after operation. They then die from a return of the local disease or else from a generalization of the condition. Graefe said that all of these cases died.

DR. EMIL GRUENING: I have seen two cases in which there has been an apparent immunity from the return of glioma. The first case was operated on in 1875; the patient was a girl 5 years of age. The optic nerve was not involved. The girl is still under observation and in perfect health. The second case, a child 1 year old, was operated on in May, 1880. It was a case of true glioma, with no involvement of the optic nerve. The child is still perfectly healthy. Both of these patients have been wearing artificial eyes since the operation.

DR. JOHN GREEN, of St. Louis: I have found most of the operations for entropion of the lower lid unsatisfactory. I have in a general way followed Panas' recommendation of making an incision below and bringing the lid down by the use of sutures. I have extended this operation by the following procedure: After inserting the sutures, I make a cut a little inside of the border of the lid, carrying it through the whole thickness of the tarsal fibrous tissue. When this is done the sutures are much more effective, and I find that there is no tendency for cicatricial contraction to occur in the process of healing. The results obtained by this method have been eminently more satisfactory than those obtained by any other procedure.

DR. W. F. MITTENDORF, of New York, reported a

PHENOMENAL PULSATION OF THE INTERIOR OF THE EYE.

The patient, 15 years of age, came under observation for asthenopic trouble. He showed no signs of disease. The tension of the eye was normal and the fundus was normal. There was no pulsation of the arteries or veins, but pulsation could be induced by pressure. A short distance above the disc there was a grayish-white band stretching from one vein to another, and looking like a little sac filled with fluid. It presented distinct pulsations which corresponded with the cardiac pulsations. The patient was seen a number of times, and the appearance was always the same. A little higher up and more to the nasal side there was a similar band connected with an artery. This did not pulsate except when pressure was made. It was thought that the band was composed of connective tissue, which was thrown into vibration by the meeting of the vibration of the two veins with which it was connected.

DR. LUCIEN HOWE, of Buffalo, read a paper on

INCREASE OF BLINDNESS IN THE UNITED STATES.

Attention was called to the fact that, while the population during the ten years from 1870 to 1880 increased at the rate of 30 per cent., blindness during the same time increased over 140 per cent. By means of a diagram this percentage of increase in each State separately was shown. The statistics also show that blindness increased in an almost constant ratio from north to south in the United States, and that it decreased in the same way from east to west. This was also shown by colored maps. As for the causes, contagion was found to exercise the most important influence. Immigration was also considered as an important factor in view of the large number of contagious diseases of the eye introduced every year into the country, and the laxity or absence of quarantine regulations regarding them. As for the prevention, suggestions were offered, *first*, as to the care of newborn children; *second*, the isolation of suspicious cases in residential schools and other institutions, even for adults also; *third*, the instruction of the public as to the advisability of guarding against contagious forms of disease.

In connection with this matter, Dr. Howe offered the following:

WHEREAS, The census reports indicate that there has been an increase in the number of blind in the United States, more than four times as great as that of the total population, and

WHEREAS, An inquiry as to the causes of this shows that it is largely due to contagious diseases of the eye, therefore

Resolved, That a committee of three be appointed to examine further as to this apparent increase, and recommend means for its prevention.

Resolved, That the President of the United States and the Secretary of State be respectfully requested to furnish this committee with whatever letters or other recommendations may be necessary to further their investigations in this country or elsewhere.

Resolved, That the officials in charge of residential schools and similar institutions also be requested to assist the committee to any extent in their power.

These resolutions were adopted, and the President appointed Dr. Lucien Howe, of Buffalo, as chairman of the committee, the other members to be appointed subsequently.

(*To be concluded.*)

CHICAGO MEDICAL SOCIETY.

Stated Meeting, May 2, 1887.

DR. F. C. HOTZ read a paper on

THREE CASES OF SYMPATHETIC OPHTHALMIA ARRESTED BY EARLY ENUCLEATION OF THE INJURED EYE.

(See page 202.)

DR. FRANKLIN COLEMAN: The point that Dr. Hotz has taken up is one of the most interesting in regard to sympathetic ophthalmitis. The necessity for enucleation is very definitely settled when the second eye is in an irritable condition. One objection to enucleation is death. I have lost one case from meningitis after enucleating an eye, with ophthalmitis. I do not think deformity should be taken into consideration. Out of seven cases of sympathetic ophthalmia five improved after enucleation of the exciting eye. I have never seen an unfavorable result to vision follow. I have not seen the second eye get any worse after operation on the first, and I have not seen an eye with sympathetic ophthalmia get better without operation. McKenzie fifty years ago, before enucleation was practiced, said he never saw an eye recover from sympathetic ophthalmia. I wish to ask Dr. Hotz whether he thinks that microorganisms generally produce sympathetic ophthalmia? If so, when the organisms have traveled from the first eye to the second, how would it benefit the *second* eye to remove the first?

DR. W. T. MONTGOMERY: There is one point that has not been referred to, that is, constitutional treatment. I think it is the rule to give mercury in sympathetic trouble. I am in the havit of enucleating the injured eye if it is blind, no matter what form the sympathetic inflammation has assumed. I think that constitutional treatment is very important, and it is my practice to bring the patient under the influence of mercury as soon as possible in all cases of sympathetic ophthalmia, whether the injured eye has been enucleated or not.

DR. R. TILLEY: In 1883 the Ophthalmological Society of Great Britain referred to a committee the question of the general history of sympathetic ophthalmitis. The committee appointed proposed a series of questions to the members of the Society. The first of these questions was: Given a case of sympathetic ophthalmitis, does the enucleation of the exciting eye modify the course? The committee took three years to consider the question, and after accumulating 200 cases among the published and unpublished cases that could be obtained among their fellow members and throughout literature, they decided that they were unable to formulate an answer to the question. One conclusion that they came to was that the enucleation of the eye in the given condition did not seem to be detrimental to the general course of the sympathetic ophthalmitis. It is true that Mauthner claims when sympathetic ophthalmitis is fully developed, at any rate certain forms of it, the eye should not be enucleated. But I think the first case referred to, and the second case, which was similar, would really come under the class that Maunther would call irritation, and that, he would claim, should be unquestionably enucleated; because he distinctly says that in sympathetic irritation, especially where the sight of the exciting eye is gone, enucleation is absolutely demanded. To determine just where sympathetic irritation leaves off and sympathetic inflammation begins is a difficult point. The definition of sympathetic ophthalmitis given by the committee appointed by the Society of Great Britain was, turbidity of the vitreous or irido-choroiditis plastica, keratitis punctata, iritis with adhesions, etc. They distinctly say that they exclude simple sympathetic irritation, the reason being, as I understand it, because the opinion is fully established that with a condition of sympathetic irritation, especially where the sight is absent in the exciting eye, enucleation is the rule without any exception whatever. I infer that Dr. Hotz thinks that microörganisms are always present where sympathetic ophthalmia exists. That

question seems still as unsettled as the question of enucleation in a case of sympathetic ophthalmia. I think Alt recently reported a case where he searched most assiduously for the presence of microörganisms in the enucleated eye, but was unable to find any. I think it very unlikely that sympathetic ophthalmia should always travel through the optic nerve.

DR. FRANK BILLINGS: It is true, as Dr. Hotz has stated, that the staphylococcus pyogenes aureus has been found in sympathetic inflammation of the eye; it is the organism that is almost always found wherever there is pus present. So often is it found that, wherever we have an abscess, we can expect to get a culture of this organism. The experiments of Deutchmann, as given by Dr. Hotz, are on record in the reports of the Kaiserlichen Gesundheits-Amt. Other experiments were carried out after he made his statements; that is, injections were made of the staphylococcus pyogenes aureus with the object in view of seeing if it would excite a sympathetic ophthalmia. These experiments were made on rabbits, but not always with success; wherever suppurative inflammation resulted in the eye, then sometimes the sympathetic ophthalmia arose on the other, but not always; the subject is unsettled, and must remain so. Mistakes have been ascribed to the experiments already made, that they were careless in making their cultures, that perhaps they did not get that par ticular culture from the inflamed eye. The true culture of the staphylococcus pyogenes aureus would be of an orange color, and further, if the culture did grow within the eyeball, it would cause suppuration.

DR. HOTZ: I did not say in my paper that I ac cepted Deutchmann's view, that sympathetic ophthalmia is an infectious disease. I have not made any experiments myself, and this question is so new and so difficult to settle that it would be premature to decide on the experiments so far made and to assert that sympathetic inflammation is always the result of the immigration of microörganisms. I referred to these experiments of Deutchmann simply as an interesting illustration showing that in one way, at least, sympathetic inflammation can be produced, and that it always shows itself in the second eye in the optic nerve first. These are questions which I did not propose to discuss in this paper.

In reference to the statement made by one of the speakers that I did not give a clear definition of what I meant by sympathetic inflammation: From his remarks I should infer that he would not consider as the beginning of sympathetic inflammation such a condition as I described in the first and second cases. But I thought it was clear that if the optic nerve is not only hyperæmic, but its outlines indistinct and the papilla swollen, showing that there is more than an engorgement of the blood vessels, this condition of the nerve has passed the stage of irritation, that there is actually an active inflammation going on; we have an active neuritis and not simply an irritation. I consider this is the first stage of sympathetic inflammation. What I would call sympathetic irritation would refer to such disturbances in the second eye as sensitiveness to bright light or disability to use the eye on account of pain, in reading, a painful accommodation as I may call it, an impossibility of accommodating the eye in reading for any length of time, while the eye appears absolutely normal shows no evidence of inflammation, externally or internally. Such a condition is sympathetic *irritation*, and as far as I know it never passes over into sympathetic *inflammation*. It can go on for months and never disturb the eye in any other way; and you will see at once this is a very different condition from anything I referred to. Sympathetic irritation can always be relieved by the removal of the exciting eye, no matter how long it has been going on. But in sympathetic inflammation there is great danger in delay; it cannot be arrested when advanced very far, but it can be in the incipient stage. That is what I tried to prove by my paper to night.

FOREIGN CORRESPONDENCE

LEIPZIG AND DRESDEN.[1]

Thiersch—Spondylitis—Tubercle Bacilli and Suppuration—Osteo-Myelitis—Von Lesser—Stelzer—Fragments of Wood in the Bowels—Foreign Body in the Heart—Tubercular Osteo-Myelitis—Vaginal Hysterectomy for Carcinoma—Leopold.

Dear Dr. Fenger:—From Halle I went to Leipsig for the purpose of spending a few days in the surgical wards of Professor Thiersch. I came in time to attend the opening lecture of the Spring term and soon became convinced that this famous surgeon had passed the zenith of fame and usefulness, and is rapidly approaching senile marasmus physically and mentally. Thiersch has immortalized himself by his many ingenious plastic operations and his classical work on Epithelial Carcinoma, as well as by many other valuable contributions to surgical literature. It is a great pity that such men, for the sake of science, grow old too soon, but such is life, short in its duration, and the greatest genius must submit to the inevitable consequences incident to old age. During my former, as well as on this, visit to Europe I have been repeatedly reminded of the fact that when a man arrives at a certain age it would be better for himself, for his reputation, and more especially for the school he represents, to retire. Langenbeck appreciated this fact and retired at the time when he was still in the possession of all of his faculties to make room for a man younger in years. The sooner Theirsch follows his example the better for himself and the students. There are many younger men in Germany who would bring more enthusiasm into the lecture room, and who are well prepared to become the successor of this eminent surgeon.

In his introductory lecture he advised his students to take full notes on the cases presented in the clinic so as to preserve the material thus gained for future use and reference. The subject of his clinic was spondylitis, and he presented a number of cases to illustrate the different stages of the disease. He called attention to the fact that tubercular inflamma-

[1] By permission of Drs. Fenger and Senn.

tions of bone or joints may heal spontaneously as long as no suppuration takes place, and that even in the latter event a cure is still possible. I believe it can be considered as a settled fact that the bacillus of tuberculosis produces no suppuration, that its presence only indicates a specific inflammation which terminates invariably in the production of granulation tissue, and that when suppuration takes place secondary infection with pus microbes has occurred. A tubercular abscess without the presence of pus microbes does not contain pus, but the products of degenerative changes in the fungous granulations. If the bacillus of tuberculosis meets with sufficient resistance on the part of the surrounding tissues it finally exhausts the nutritive material in the granulations and dies, or remains in a latent condition, and the granulation material is converted into connective or circatricial tissue and the local lesion is cured. These are the cases which terminated most frequently in spontaneous cure. If liquefaction of the infected tissues takes place and the products of degeneration are absorbed a similar favorable termination is possible. If the same product is evacuated by incision under antiseptic precautions a spontaneous cure is accelerated. If on the other hand a secondary infection with pus microbes takes place the patient incurs the danger of septic infection and diffusions of the tubercular process. Thiersch never alluded to the operative treatment of tubercular spondylitis, and a number of cases which were shown seemed to prove that such a course of treatment is unusual in his practice.

A case of osteo-myelitis in a young man was brought into the operating room after the class had been dismissed. The original disease affected the tibia and adjacent parts and amputation of the thigh had been performed to save the life of the patient. As is so often the case during the latter part of the infective process the lower epiphyses of both radii became painful and swollen. At present the patient has no fever and the lower end of the bones is only moderately swollen and tender. The patient was narcotized and the lower end of one of the bones was opened with a chisel under the supposition that it contained pus. The cancellated structure was found in an osteo-porotic condition, but no pus or necrosed bone was found. It is one of the characteristic features of acute infective osteo-myelitis that the intensity of the infective process is diminished with successive attacks in different bones of the same individual and that the more remote the time of infection from the primary attack the less tendency to suppuration. While at the primary seat of infection rapid suppuration takes place the secondary or tertiary points of infection are less likely to suppurate. Very often the remote points of localization become the seat of an osteo plastic inflammation because the potency of the infective germs has become reduced to snch an extent that they are no longer capable of producing pus, hence I was not at all astonished that in this operation no pus was found, but that the bone was in a condition of osteo-plastic inflammation.

The surgical wards of the Klinik contain 15 beds which afford ample material for clinical instruction. The antiseptic treatment of wounds is not as thoroughly carried out as in most of the Kliniks in Germany, and a visit through the wards only corroborated this statement. During my stay in Leipzig I called on Freiherr Dr. von Lesser, who is one of the teachers of surgery in the University. He is an able surgeon and a hard student, and well known by his numerous contributions to surgical literature. I was so unfavorably impressed with the surgical clinic in this city that I left the next day for Dresden.

I had met Dr. Stelzer in Berlin, and as his papers at that time attracted a good deal of attention, I was anxious to see some of his work in the hospital. Dr. Stelzer has a very large clinical material at the Allgemeines Krankenhaus in Dresden, and is known to have performed many novel and difficult operations. You will find in the next volume of the *Transactions of the German Congress of Surgeons*, a paper read by him in which he gives a graphic description of two abdominal sections made on the same patient for the purpose of removing large fragments of wood from the intestinal canal, with recovery of the patient, and another in which he gives a description of an operation for the removal of a foreign body from the heart; and although he did not succeed in extracting it after he had exposed the heart and had seen the foreign body, (a piece of knitttng-needle) his patient recovered, although during the operation not only the pericardium but the pleura also was opened. He showed me a number of exceedingly interesting cases, which for want of space and time I am sorry I cannot describe. Sublimate solutions are used for irrigation and sublimated wood-wool for dressing.

The first day I visited the hospital I saw him perform an operation for tubercular osteo-myelitis in the tibia of a young woman. The bone was considerably swollen above the ankle, and a number of fistulous communications led to the diseased bone. With a chisel the bone was opened above the ankle joint, and in the line of the epipheal cartilage a large carious deposit was found which was carefully removed with a sharp spoon. Most surgeons would have stopped here, as the bone above this point showed no enlargement and the tubercular depot had been apparently removed by the *évidement*, but Dr. Stelzer suspected mischief higher up and chiseled away more of the anterior wall of the tibia, and to my utter astonishment exposed a number of distinct and isolated tubercular faci as far as the upper epiphysis of the tibia. This case was instructive to me, and has satisfied me that many of the recurrences after operations for tuberculosis in bone are due to imperfect operations. The distant tubercular foci had not as yet given rise to secondary periostitis, and a more careless operator would certainly have overlooked them and his services would have been called into requisition at some future time without fail. The wound was closed with sutures, except at the upper and lower angles where drains were introduced.

The second day I saw him perform a vaginal hysterectomy for carcimona. The woman was 35 years

of age, and a multipara. The disease had existed for some time, but appeared to be limited to the cervix. Thorough antiseptic precautions were observed before and during the operation. The patient was placed in exaggerated lithotomy position and the uterus rendered accessible with retractors. Instead of forceps sharp double hooks were used for bringing the uterus down. The vaginal roof close to the insertion of the uterus was incised with the scapel and the organ detached with blunt instruments and scissors. Where hæmorrhage was expected the incision was made between two ligatures. The peritoneal cavity was first opened in front of the uterus but as it was found impossible to antevert the fundus sufficiently to bring it out through the wound the cul-de-sac of Douglas was opened, and the fundus brought out through this opening. The round and broad ligaments were tied separately before they were divided. After the uterus was removed the omentum came down into the vagina and after thorough disinfection it was reduced and the vaginal canal plugged with iodoform guaze. Duration of operation about an hour and a half.

I visited the gynecological and obstetrical wards in charge of Professor Leopold, and was promised a laparotomy for next day. I was asked to come perfectly aseptic, which request I carried out conscientiously, including bath, shampooning, etc.; but was informed next morning that inasmuch as the city was celebrating the King's birthday, the operation would be postponed. As Dr. Stelzer performed his vaginal hysterectomy an hour later it could not have been considered a crime in Dresden to perform a surgical operation on such an eventful day, and I made up my mind that a surgeon who postpones on such flimsy grounds cannot be troubled with many operations during the year; consequently I did not wait to test the reliability of the second promise, but lost no time in transporting the aseptic *ego* to a more profitable place. N. SENN.

DOMESTIC CORRESPONDENCE

UNPROFESSIONAL CONDUCT OF RAILWAY SURGEONS.

Dear Sir:—While the poet has said,

> The rank is but the guinea stamp,
> The man's the gowd for a' that,

the world concedes the importance of the stamp. Germane to your editorial on, "Medical Rank in the Navy," we desire to remark, "We have heathen nearer home." For a quarter of a century, by resolution and memorial, the American Medical Association has been endeavoring to dignify the profession, and to protect American seamen by providing surgeons for ocean steamers and by giving to the medical officers of the Navy a rank and pay proportionate with the acquirements and services demanded; and yet the Surgeon General reports, "It is impossible with the present inducements offered to find young men, possessing the necessary qualifications, who are disposed to become medical officers in the Navy."

Meanwhile there has grown up a system of land transportation that carries more passengers in one day than our marine service transports in a month, and liable to accidents and injuries that can hardly occur on the water. Some of our great railroads, recognizing the danger to which its employes and passengers are constantly exposed have appointed men of distinguished professional ability as "chief surgeons," and in every considerable town along the lines of their roads the best resident practitioners as "local surgeons," paying them an honorarium commensurate with the services rendered and tendering the compliment of an employee's pass, thus assuring to the traveling public and to their employes the best possible surgical skill in case of accident.

Other great roads, with the greed too often common to monster corporations, or with a deplorable ignorance of the importance to themselves and the public, have appointed as chief surgeons men whose respect for their profession permits them to send to doctors along the line of their roads this contract:

> For and in consideration of a pass over the ——— division of the —— & —— road I agree to render all the professional services required by such road and by the Hosp. department of the road in —— county, state of ———. ——— ———.
> WITNESS.

While on these roads every other employe, from the president to the section boss, in addition to his salary, can get a pass for the asking, the surgeon, who, if he has any practice, rarely has occasion to ride, except in the service of the road, and whose services require the highest skill and are fraught with the gravest results, is placed beneath the lowest employe of the road and tendered for his services a pass. What a regard for his profession must such a chief surgeon have, and what a soul!

Unlike applications for appointments in the Navy such roads do not require precedent examinations and "necessary qualifications," and hence have no lack of applicants.

While some good men accept their appointment to maintain their professional standing among a people who without knowledge of the emptiness of the honor look upon it as evidence of merit, an overcrowded profession gives and abundance of supplicants who need opportunity for surgical practice.

The chief surgeon of a rich corporation who would ask skilled and valuable services from his professional brethren for nothing, while he receives a salary far above his professional worth, should receive the condemnation of every honorable member of the profession; and the chief surgeon of a great railroad who would appoint cheap doctors, because they are cheap, to a positiön that might place under their care any man in the nation from its chief Executive down merits the execration of the whole people.

If the American Medical Association feels that the honor of the profession and the protection of the people is involved in appointing competent surgeons to our ocean steamesrs and in securing suitable rank and pay to the medical officers of the Navy, has it not a parallel interest in the qualification and position of the local surgeons of the great railroads of the country? W.

INTERNATIONAL CONGRESS.

XV SECTION, ON PUBLIC AND INTERNATIONAL HYGIENE.

Provisional Organization.

Provisional Programme of Proceedings, Papers, and Discussions, prepared by Joseph Jones, M.D., of New Orleans, Provisional President of Section, Public and International Hygiene.

FIRST DAY, SEPTEMBER 5, 1887.

1. Call to order by the President.
2. Registration of the officers and members.
3. Registration of the members of the Congress who may desire to read papers before the Section on Public and International Hygiene, and take part in its deliberations.
4. Formal presentation by the President of the names of the officers and members of the Council of this Section, with the titles of the essays and papers to be read and discussed.
5. Announcement of the titles of voluntary papers and essays to be presented to this Section for discussion.
6. Reports of Vice Presidents. Reports of Secretaries.
7. Address by the President on "Public and International Hygiene."

SECOND DAY, SEPTEMBER 6.

1. Reading of Minutes.
2. Registration of officers and members.
3. Announcement of order of business and reading of titles and papers.

PAPERS AND DISCUSSIONS.

1. Reading of paper by Richard H. Day, of Baton Rouge, La., entitled "Report of an Inquiry into the Facts Relating to the Effects of Overflows of the Mississippi River and its Tributaries, and Rice Culture, upon the Public Health, and the Best Means of Controlling these Baleful Influences."
2. Discussion of the paper of Dr. R. H. Day.
3. Discussion of the Various Systems of Drainage and Sewage now employed in Europe and America.
4. Reading of paper by Dr. Leighton, entitled "The Place of Sanitary Science in Education, in which will be Briefly Sketched—

(*a*) The History of a Human Life, and note its Bearing on our Educational Deeds.

(*b*) Recall the Character Impressed upon Education by the Various Civilizations of the Past, and in the Light of such Past Experience Discuss some of the Elements of Strength and Weakness in our American Civilization, and consequently in the Controlling Ideas which Dominate our Civilization.

(*c*) Adhering as closely as possible to Ways and Means already Established, show how these various Educational Measures may be Utilized and Gradually Modified, so as Practically to Popularize Sanitary Notions, within their Personal and Public Aspects, with the least Radical Changes, and with due Recognition also of the Claims of other more and even less Important Training and Interests."

5. Discussion of the paper of Dr. A. W. Leighton, embracing the subject of *Sanitary Education.*
6. Paper by Dr. W. K. Fort, of New Orleans, entitled "The Necessity of Public Hygiene to institute Efforts to suppress Syphilis, one of the Most Potent Agents of Destruction to Mankind."
7. Discussion of Dr. Fort's paper.
8. Discussion as to the Existence and Micro-organism of Syphilis.
9. Discussion of the measures best adapted to the Prevention and Modification and Arrest of Syphilis.
10. Discussion of the Relation of Syphilis to Vaccination.
11. Reading of volunteer papers and essays.
12. Discussion of volunteer papers and essays.
13. "The Application of Chemical Methods and Science to the Solution of Various Problems Relating to Public and International Hygiene," by Prof. J. W. Thudichum, of London.
14. Discussion of the paper of Dr. Thudichum.
15. Discussion of the Relations of Chemical Science to Public and International Hygiene.

THIRD DAY, SEPTEMBER 7.

1. Reading of Minutes.
2. Registration of officers and members.
3. Announcement of order of business and reading of titles and papers.

PAPERS AND DISCUSSIONS.

4. "The Cause and Prevention of Typhoid Fever, with Delineation of the Micro-organisms of Typhoid Fever," by Dr. Antoine Magnin, of France.
5. Discussion of Professor Magnin's paper.
6. Discussion of the Origin, Natural History, Relations to the Public Health, and Prevention, of Typhoid Fever.
7. "Sobra un Bacillo Malariæ, Natura della Malaria, sulla Preservazione dell' Uomo per paresi di Malaria," by Prof. Tommasi-Crudeli, Professor of Hygiene in the University of Rome, Italy.
8. Discussion of the paper of Dr. Tommasi-Crudeli, and of the Facts and Theories Relating to the Cause, Nature, and Prevention of Malarial Fever.
9. "Le Vaccin de la Fièvre Jaune; Resultats Statistiques des Inoculations Practiqués avec la Culture Attenuée du Microbe de la Fièvre Jaune," par le Dr. Domingos Friere, of Rio de Janeiro, Brazil.
10. Discussion as to the Nature of the Microbe of Yellow Fever, and the Nature and Value of Vaccination with Attenuated Cultures of the Yellow Fever Virus, as practiced by Professor Domingos Friere, of Brazil, for the modification and prevention of the disease.
11. "L'étiologie et la Prophylaxie de la Fièvre Jaune," par Dr. Manuel Carmona y Valle, of the University of the City of Mexico, Republic of Mexico.
12. Discussion of the Method of Professor Carmona, for the Modification, Prevention and Arrest of Yellow Fever.
13. "Outline of Investigations relating to the Causation and Prevention of Endemic and Epidemic Diseases, and more especially Malarial Fever, during a Period of Thirty Years; with a Claim for the

Comprehensive Demonstration of the Chemical, Microscopical, and Pathological Characters of the Blood and Organs in Malarial Fever; and the Application of the results of these Investigations to the Diagnosis of Diseases, and to Medico-legal Science," by Joseph Jones, M.D., of New Orleans, La.

14. "The Influence of Climate in the Production of Cholera Infantum," by George Troupe Maxwell, of Ocala, Florida.

15. Discussion of paper by Dr. Maxwell.

16. Discussion of the causes of Diarrhœa and Dysentery, of the measures of Public Hygiene, best adapted to their prevension.

17. Discussion as to the present state of our knowledge with reference to the mode of origin and spread of Asiatic Cholera.

18. Discussion of the nature and value of the Methods of Disinfection and of Sanitation employed for the arrest of Asiatic Cholera.

19. Discussion of the mode of performance, and the value of vaccination with the atenuated virus of Asiatic Cholera, for the Modification and Arrest of Asiatic Cholera.

20. Relations of Asiatic Cholera in its Origin and Propagation to climate, soil and sanitary conditions.

21. "Public Hygiene," by Dr. Benjamin Ward Richardson, of London.

22. Discussion of paper by Dr. Richardson.

23. Discussion of the hygiene of Public Institutions, buildings, hospitals, barracks, prisons, penitentiaries and jails.

24. Discussion of the question of the establishment of uniform hygienic rules for the conduct of civil and military prisons; and for the humane treatment of military prisoners, in accordance with hygenic laws; and for the prompt and uniform exchange of prisoners of war.

FOURTH DAY, SEPTEMBER 8.

1. Reading of minutes.
2. Registration of officers and members.
3. Announcement of order of business and reading of titles and papers.

PAPERS AND DISCUSSIONS.

4. "Discussion of the Causes of Typhus Fever in the Prisons and Hospitals during the American Civil War, 1861–1865," by D. W. Hand, of St. Paul, Minnesota.

5. Discussion of the facts illustrating the origin and mode of propagation of Hospital Gangrene, Erysipelas and Pyæmia in military hospitals and prisons.

6. "Military Hygiene," by M. K. Taylor, M.D., Major and Surgeon, U. S. A., San Antonio, Texas.

7. Discussion of paper by Dr. Taylor.

8. Discussion of subjects relationg to Military and Naval Hygiene.

9. Demonstrations of portable apparatus for water analysis.

10. Reports of Committees.

11. Reading of Volunteer papers.

12. "Relations of Race to the Origin and Propagation of various Diseases," by Professor E. D. Mapother, M.D., of Dublin, Ireland.

13. Discussion of the paper of Professor Mapother and of the following subjects:

(*a*) The relative Mortality of the different Races of Mankind as influenced by Physical Constitution, Germinal Forces, Climate, Soil, Food, Occupation, Domestic Habits and Sanitary Conditions.

(*b*) Relative rates of Increase and of Mortality amongst the white and colored Races in Africa, in the West Indies, in Brazil, in Mexico, and in the United States of America.

14. "The History and Practical Application of Steam as a Disinfectant—

(*a*) The degree of Temperature and Time required.

(*b*) Mode of Application.

(*c*) Practical Results." By Vice-President A. N. Bell, of New York City, N. Y.

15. Discussion of the paper of Dr. Bell.

16. Discussion of the relative value of Dry Heat, Dry Air, Moist Air, Steam, and superheated Steam, in the disinfection of infected Ships, Houses, and articles of Furniture and Clothing.

17. Description and demonstration of the various forms of Apparatus adapted to the application of Heat to the disinfection of infected Ships, Houses, and articles of Furniture, Beds, Bedding, Clothing, etc.

18. Discussion of the relative value of the more important Disinfectants and Germicides, as Bichloride of Mercury, Carbolic Acid, Sulphate of Iron, Sulphate of Copper, Red Oxide (binoxide) of Mercury, Sulphurous Anhydride (sulphurous acid), and Chlorine, Iodine and Bromine.

19. Discussion of the relative value of the various methods of Disinfection, Detention, and Isolation, employed at the National and State Quarantine Stations of Portugal, Spain, Italy, France, Austria, Germany, Turkey, Russia, England, United States of America, Republic of Mexico, Central, South, and Insular America.

20. Discussion of the facts showing the necessity on the part of all civilized Nations of formulating and adopting uniform Rules and Regulations governing Quarantine, modified and adapted to the Climate, and to the Endemic and Epidemic Diseases of different Countries.

FIFTH DAY, SEPTEMBER 9.

1. Reading of minutes.
2. Registration of members.
3. Reports of Secretaries.
4. Reports of committees.
5. Announcement of titles of papers and order of business.

PAPERS AND DISCUSSIONS.

6. "A new method of testing the Germicidal and Antiseptic Powers of certain Mineral and Vegetable Substances, employed externally and internally, in the treatment of Wounds, Tumors, Enlarged Glands, Ulcers, and Syphilis, and in certain Sanitary Operations of Domestic and Public Hygiene," by Joseph Jones, M.D., of New Orleans, La.

7. Discussion of the paper of Dr. Joseph Jones.

8. Discussion of previous question relating to the

methods employed by Chemists, Physiologists, and Microscopists, to determine the nature and mode of propagation of the Causes of Infectious and Contagious Diseases.

9. "Subjects relating to Public Hygiene," by W. C. Cook, M.D., of Nashville, Tenn.

10. Discussion of the paper of Dr. Cook.

11. "On the Relations of State Medicine to Medical Jurisprudence," by W. L. Schenck, M.D., of Osage City, Kansas.

12. Discussion of the paper of Dr. Schenck.

13. "Sanitary Inspection of Railroads, and the Sanitation of Railroads, Cars and Stations," by R. Harvey Reed, M.D., of Mansfield, Ohio.

The report of Dr. R. Harvey Reed "On the Sanitary Inspection of Passenger Coaches," will embrace the results of careful experimental investigation. In the language of its author: This report will be based upon the results of repeated personal examinations of the passenger coaches of a number of the leading American railroads, while in actual service, and will embrace the following:

1. The Temperature:
   of the atmosphere outside of the coaches;
   of the air inside the coaches while running;
   of the air inside the coaches while standing.
2. The Heating of the Coaches:
   (*a*) by stoves.
   (*b*) by hot air.
   (*c*) by hot water.
3. The Ventilation of Coaches:
   (*a*) direction of wind outside of coaches.
   (*b*) currents of air through the coaches.
   (*c*) supply of fresh air.
   (*d*) exit of foul air.
4. Lighting of Coaches:
   (*a*) by candles;
   (*b*) by lamps;
   (*c*) by gas.
5. The chemical analysis of the Air in the Coaches.
6. The chemical analysis of the Drinking-water used in the Coaches.
7. The use of Disinfectants.
8. The supply of Tools, Water-buckets, etc,
9. General Sanitary Condition:
   of the toilets;
   of the hoppers;
   of the urinals;
   of the water-closets.
10. Conclusions and Suggestions.

14. Discussion of the paper of Dr. R. Harvey Reed, Vice-President.

15. Discussion of the Sanitary Cordons of Railroads, and of International and Inter-State Communication and Commerce, during the prevalence of Contagious and Infectious Diseases, such as Yellow Fever, Small-Pox, Asiatic Cholera, and Oriental Plague.

16. "Cremation," by Dr. Felix Formento, of New Orleans La.

17. Discussion of Dr. Formento's paper.

18. Discussion of the relative value, in a hygienic point of view, of the various modes of the Disposal of the Dead now prevalent in Civilized Nations.

19. Discussion of the modes, and various Structures employed in the Cremation of the Dead.

20. "A Practical and Common-sense View of Public and International Hygiene, the Importance of the Work; What is Practicable? The Necessity of Harmony and Uniformity of Action among the States of this Republic in order to make effective the Work of the International Medical Congress to prevent Disease and contagious Epidemics," by Urial R. Milner, M.D., of New Orleans, La.

21. Discussion of paper of Dr. Milner.

22. Reading of volunteer papers.

23. Reports of committees.

[NOTES—1. The preceding "Provisional Programme" of the papers and subjects for discussion during the sessions of the Section on Public and International Hygiene, is evidently subject to indefinite expansion. It will be observed that under the head of Volunteer Papers and Essays, any registered member of the Ninth International Medical Congress will have an opportunity of being heard on any subject relating to Public or International Hygiene.

2. The subjects proposed for discussion embrace a large amount of practical knowledge of vast importance to this Republic and to all civilized nations.

3. The meetings of the Section on Public and International Hygiene of the Ninth International Medical Congress, to be held in Washington, D. C., September 5, 1887, as indicated by the preceding "Provisional Programme," should be devoted exclusively to the reading and discussion of scientific papers and essays relating to the science and art of Public and International Hygiene.

4. All officers and members of the Council, and all individuals, not included in these classes, who may desire to take part in the proceedings, *must first register as members* of the Ninth International Medical Congress.

5. The daily registration of officers and members relates to those sitting for the first time in this Sectiou, and is designed to prevent unnecessary confusion in the proceedings.

6. This "*Provisional Programme of Proceedings of the Section on Public and International Hygiene*, is submitted as a contribution (the result of much labor and extensive correspondence), to aid those members of the medical profession who may desire to present papers or to engage in the discussions, with a full and respectful recognition of the powers of the Ninth International Medical Congress, which can and will, upon its formal assemblage in Washington, D. C., *confirm or reject* all (or each and every) "Provisional Officers," "Sections," and "*Provisional Programmes*" of scientific work.

JOSEPH JONES, M.D.,

156 Washington Avenue, Fourth District, New Orleans, La., July 21, 1887.]

REDUCED RAILWAY RATES.

The roads included in the "Western States Passenger Association" have offered the same reduction as already announced for other associations, that is: one full fare going and one-third fare returning on the certificate plan. The following roads and associations require that their certificates shall be distributed by the undersigned to whom application should be made for them:

Southern Passenger Association.

Chicago & Alton Railroad Company.
Illinois Central Railroad Company.
Trunk Line Association, (the last named after Aug. 20th).

As far as heard from the certificates are distributed, on all other roads, only by the agents of the roads and can be had on purchasing the tickets at the stations.

It is important for members to bear in mind the following rules:

1. Some of the roads will not sell return tickets earlier than three days prior to the meeting of the Congress.

2. Members must secure receipts from the ticket agents at starting points for full fare to Washington or, as far as the company has jurisdiction, upon the certificate of the company.

3. The going and return must be over the same route.

Extract from rules of some of the "Western States Association," "Members passing over *two* or more railways en route to your meeting or who pay two or more short fares locally, on account of local tickets not being sold through, should procure receipts for the fare paid going over each line, or for each ticket purchased, as return tickets at the reduced rate will only be issued locally by each company and for same trips. Blank forms for this purpose are in the hands of all station agents and will be issued as receipts for full fare paid on application.

J. W. H. LOVEJOY, M.D.,
Ch. Com. on Transportation.

No. 900 12th St., Washington, D. C.
Attest:—C. H. A. KLEINSCHMIDT, M.D.,
Secretary Com. of Arrangements.

The Northern Pacific R. R. Co. and the St. Paul, M. & M. R. R. will return members to any points on their lines for *one-fifth* fare, full fare being paid on coming East to St. Paul. The certificates of these Roads are distributed by the Railroad Agents.

The Union Pacific declines to make special rates. The New England General Ticket and Passenger Association also declines.

J. W. H. LOVEJOY, M.D.,
Chairman Trans. Com.

EXCURSION RATES TO CALIFORNIA,—CORRECTION.—Concerning the excursion rate for members of the Medical Congress and families from Niagara Falls to California, a mistake was made in announcement last week. It will be about $95, and the sleeping car fare will be about $17. From Washington, via New Orleans, it will be about $100. This is round trip, and permits the excursionists to stop over a day at Salt Lake going and returning, via New Orleans and through Kentucky, visiting Mammoth Cave, etc. Tickets good for six months.

H. M. VANARMAN, T. P. A. S. P. Co.

EXHIBITS AT THE CONGRESS.—All applications for space for Exhibits before the International Medical Congress should be addressed to Dr. D. C. Patterson, Treasurer of the Committee of Arrangements and Chairman of Sub-committee on Hall and place of meeting of Congress.

MISCELLANEOUS.

DR. JOSEPH C. HUTCHINSON, long known as the most eminent surgeon of Brooklyn, died in that city on July 17, aged 60 years.

FOUL DRINKING WATER ON BOARD SHIP.—Dr. Harold C. Ernst, the bacteriologist of Harvard University, to whom was submitted for analysis a vial of the water drunk by the passengers of the Allan Line steamship Prussian, which arrived at Boston from Glasgow a few weeks ago, made his report to the Board of Health. He found evidences of dangerous impurities in the water, and that it was totally unfit to be drunk. Sixty-five of the Prussian's passengers were ill with typhoid fever when the vessel reached port.

THE HEATING OF CARS—RAILWAY BRIDGES.—Last month Gov. Hill, of New York, signed a bill regulating the heating of steam cars. The statute makes it unlawful for any steam railroad after May 1, 1888, to heat its passenger cars on any other than mixed trains by any stove or furnace kept inside the car or suspended therefrom, except it may be lawful in case of accident or other emergency to temporarily to use any such stove or furnace with necessay fuel. Provided that in cars which have been equipped with apparatus to heat by steam, hot water, or hot air from the locomotive or from a special car the present stove may be retained to be used only when the car is standing still, and provided also that this act shall not apply to railroads less than fifty miles in length, nor to the use of stoves, of a pattern and kind to be approved by the Railroad Commissioners, for cooking purposes in dining-room cars. The law also provides that from Nov. 1, 1887, floor systems shall be maintained on all bridges so constructed as to support a derailed locomotive or cars, with guard rails or timbers so constructed as to guide the wheels in case of derailment. Guard rails shall be maintained upon the approaches to all bridges.

OFFICIAL LIST OF CHANGES IN THE STATIONS AND DUTIES OF OFFICERS SERVING IN THE MEDICAL DEPARTMENT, U. S. ARMY, FROM JULY 30, 1887, TO AUGUST 5, 1887

Col. Chas. Sutherland, Surgeon, leave of absence extended one month. S. O. 174, A. G. O., July 29, 1887.

Major B. Fryer, Surgeon, relieved from further duty at Ft. Lowell, Ariz. S. O. 176, A. G. O., August 1, 1887.

Major Ely McClellan, Surgeon, detailed as member of a board of survey, to meet at the Medical Purveying Depot, St. Louis, Mo., on August 1, 1887. S. O. 173, A. G. O., July 28, 1887.

Major Harvey E. Brown, Surgeon, relieved from duty in Dept. Mo., and ordered to Jackson Bks., La., for duty at that post. S. O. 174, A. G. O., July 29, 1887.

Capt. Jno. de B. W. Gardiner, Asst. Surgeon, granted leave of absence for one year, on surgeon's certificate of disability. S. O. 177, A. G. O., August 2, 1887.

OFFICIAL LIST OF CHANGES OF STATIONS AND DUTIES OF MEDICAL OFFICERS OF THE U. S. MARINE HOSPITAL SERVICE FOR THE TWO WEEKS ENDING AUGUST 6, 1887.

P. A. Surgeon Fairfax Irwin, to inspect unserviceable property at New York Marine Hospital, August 5, 1887.

P. A. Surgeon H. R. Carter, granted leave of absence for six days. August 1. 1887.

P. A. Surgeon A. D. Bevan, granted leave of absence for ten days. August 6, 1887.

Asst. Surgeon Seaton Norman, granted leave of absence for four days on account of sickness. August 5, 1887.

CORRIGENDA.

In THE JOURNAL of August 6, Dr. Senn's letter, read *Geuzmer* for Geugmer. On page 188, 16th line from bottom, read *mir* for mi, and 15th line from bottom read *richtige* for rechtige.

In THE JOURNAL of August 6, p. 177, table of cases of abdominal section, case 22, column 5, for "fibroid tumor of uterus, 26 lbs.", read *6 lbs.*